The Builder.

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WE are about to tell rather a long story, and perhaps a dry one,—the history of the dispute between the committee of visitors of the Cambridge Pauper Lunatic Asylum and the architects who were so fortunate as to have their design for a new asylum selected in a competition invited by the aforesaid visitors: we have no doubt, however, it will be found valuable by a considerable section of our readers.

In the year 1850 (September), the committee of visitors, through their clerk, Mr. David King, offered, through various newspapers, a premium of 150 guineas for the best plan, with estimates and specification, for a pauper lunatic asylum. The advertisement was of the usual character, and said, "any further information may be obtained" on application to the clerk. Desiring to compete, Messrs. Kendall, jun. Cope, and Edlin (whom we will throughout call Messrs. Kendall), wrote to him as invited, and in reply received a copy of a resolution of the visitors, extracted from their minute-book, ordering their clerk to advertise, and setting forth that the author of the selected design, if not employed, should receive the 150 guineas "upon the completion and delivery to the clerk to the visitors of all necessary drawings and sections requisite for carrying such plans into effect;" but if employed in the superintendence, payment for such drawings was to be included in the payment for superintendence. It is necessary to call attention to this: it is unusual, did not form any part of the advertisement, though it appears the committee considered that the architects were to be as much bound by it as by the printed advertisement, and might not have been seen by the competitors, as they were not bound to apply for further information.

In answer to the advertisement, upwards of fifty designs were sent in on the 30th December, 1850. The committee considered them until March, 1851, when they wrote to Messrs. Kendall, saying their plans were unanimously chosen for adoption. They attended the magistrates, and explained satisfactorily the design, which was then sent to the Lunacy Commissioners for their approval. In due time their architect reported, saying that he considered the estimate given in, 26,250*l.* was inadequate for the erection of the building; and he recommended the committee to have a revised estimate from the architects before the building was proceeded with. The committee communicated with the latter on this subject; and in order to surmount the objection, the plans and specifications were put into the hands of Mr. George Myers, the builder, and he at once offered the committee of visitors, in writing, November 25, 1851, *to execute the work, in the best manner, for the stipulated sum of* 26,250*l.* if they would give it into his hands without competition. With this the committee of visitors were satisfied; ordered some additional works amounting to 1,250*l.* and again returned the plans to the Commissioners in Lunacy for approval. In January, 1852, the Lunacy Commissioners approved, and the Secretary of State at the same time also approved the plans; and the clerk of the visitors wrote to the architects, for a form of advertisement to builders for tenders. In February the architects met the committee, at Fulbourn, where the building was to be erected, staked out the site, and were the next day directed to get out the working drawings. Some alterations were made, and the plans, so altered, were sent to the Secretary of State, and received his approval, 6th March, 1852; as they did afterwards the approval of the Justices of the County of Cambridge, in Sessions; also, the Justices of the Isle of Ely, in Sessions, and the Council of the Borough of Cambridge. United, the bodies passed a resolution, granting the sum of 30,000*l.* for the purposes of the works, and the working drawings were proceeded with, and the quantities taken out; when at Mr. Myers's wish, the architects wrote to the clerk of the committee, in May, 1852,—to say that, if his offer to do the entire work for the sum submitted with the design, was not accepted by the committee without competition, *he would consider himself absolved from his offer*. Soon the working drawings were completed; but it will be well, perhaps, to digress here a little, to state some facts connected with the case. It appears that the adjoining counties of Bedford, Herts, and Hunts were contemplating the erection of new lunatic asylums; and that the Cambridge committee had been, and were then, in communication with them, to amalgamate and erect one large united asylum, instead of several smaller buildings. This occasioned much delay: and it should be mentioned here, that Dr. Hill, who is the medical superintendent of the York Lunatic Asylum, was appointed by the Bedford visitors, or was consulted as to the best way of carrying out their views. Dr. Hill was also one of the original competitors for the Cambridge Asylum, and was supported by Lord Hardwicke and his brother, both on the Cambridge committee; and efforts appear to have been made from the first to bring in Dr. Hill for the work. Various meetings of the Bedford and Cambridge committees took place as to the junction, but they found it could not be carried out. The clerk communicated this to the architects, and in June, 1852, advertisements for tenders appeared. A year and a half, it will be seen, had then elapsed, during which period materials and labour had greatly increased in value, and therefore it was to be expected that the original estimate would be proportionally increased; but Mr. Myers, notwithstanding any loss that might have accrued, would have carried out his offer if they had placed the matter in his hands. On the 16th July, 1852, the committee met to open the tenders: there were seven, the lowest, 33,650*l.* (from Mr. Myers), and the highest, 55,760*l.* and they resolved, "That as the tenders were considerably above the amount they were authorised to expend, neither of them should be accepted, but that the visitors should, if necessary, apply to the several courts of Quarter Sessions and town council for their sanction to an additional outlay." It was the committee's fault that they did not accept Mr. Myers's original tender, not the fault of the architects, and knowing well how material and labour had risen in cost during the time the matter had been in abeyance, they could not complain, and they did not. The matter stood over, and they tried to join with Bedford again: various meetings were held, efforts were again made to effect a junction with Bedford county, and Mr. Myers wrote a tender to do all the building works (with some reductions agreed upon by the architects) for 27,000*l.* and the engineering works for 3,000*l.* in all 30,000*l.* but the offer was not accepted. Fresh drawings embracing the alterations were made and explained on the 13th May, 1853, when, also, Dr. Hill expounded the details of his plan for a large asylum, and urged upon them its desirableness, instead of building for Cambridge only. They passed a resolution that it was desirable to unite with the other counties. Afterwards, Messrs. Kendall were written to, "as the junction matter was still pending," for their account up to that time, and the total amount of their claim against the visitors, "in the event of their plans being given up." The architects, considering they had determined not to build their individual asylum, sent in an account to the following effect:—

Premium for the best design	£157 10
2½ per cent. commission on the lowest tender, 33,650*l.*	841 5
Travelling and other expenses.....	50 0
Total	£1,048 15

Mr. Percy, the surveyor who took out the quantities, also sent in his account:—

1½ per cent. on the lowest tender.....	£504 15
For sundry expenses.....	36 15
Total.....	£541 10*

On the 23rd of November, 1853, the committee of visitors met and decided *against* joining with Bedford, &c. and after various meetings, finding, as they said, that Mr. Hill's plan was more simple and capable of being carried into execution, than that of Messrs. Kendall, recommended that Mr. Hill's plan be adopted." No complaint is made against Messrs. Kendall, but after giving them three years and more of labour, the visitors coolly supersede them, saying, "they find Mr. Hill's plan more simple and capable of being carried out."

Mr. Hill's plans were afterwards rejected at the Sessions, the Court not thinking it right to rescind their former resolution. Lord Hardwicke, in consequence, resigned his position as one of the committee, as he had moved the adoption of the report at the county meeting. The town council of Cambridge also rejected the new design for the same reason. But the committee of visitors were determined. To make the story short, Dr. Hill's design was adopted; and an agent on the part of Mr. King, offered to pay the architects the premium of 150 guineas, and to submit all other matters in difference to arbitration; but as he wanted barristers, and Messrs. Kendall required architects, they could not agree; and the architect's feeling, as well they might, seriously aggrieved and prejudiced by such a termination of the engagement, considered it was proper to submit the case on that account to the public, through a court of law.

The Attorney-General, and Messrs. Phipson and Bovil, barristers, recommended that the action should be brought against Mr. David King, the clerk and agent of the committee of visitors, and through whom all their orders came. The cause was opened on February 16, 1855, at the Court of Common Pleas, Guildhall, when the Lord Chief-Justice recommended "the action to be referred to Mr. Cleasby, with the usual powers and terms, to raise any point of law at request of either party; and if he or the Court say action will not lie, then he and the Court to say what and against whom is the remedy; and in any event to find what is the amount due: the 150 guineas to be paid in a month, without prejudice to any question in the action." The jury then found a verdict for the plaintiff, subject to the above reference, which was agreed to by both parties.

The arbitrator held his first meeting on the 21st of May, 1855. On the part of the architects appeared Mr. Cockerell, Mr. Tite, and Mr. Mocatta; in support of the committee of visitors, Mr. Bellamy, Mr. Poynter, and Mr. Shaw, who considered that the terms of the advertisement covered everything,—competition drawings, working drawings, details, and all services, though for three years or more, short of the actual erection of the buildings!!! For the competition twenty-seven large sheets, containing sixty-one distinct drawings, had been sent in. The working drawings, made by order

* This account is also disputed, but Mr. Percy only waited to know the proper person to sue, and will now try the case at once.

of the committee, consisted of eighty-five distinct drawings and details, on sixteen sheets of large paper; and of these two sets had been required. In the whole there were 241 drawings, with a full working specification.

Mr. Tite's evidence was clear and precise. He considered that an architect is entitled to a commission of 5 per cent. on the amount of the contract, if he actually superintends the erection of the building designed by him, and to 2½ per cent. on the lowest tender, if, after the working drawings, estimates, and specifications are completed ready for contracting, and the tenders are received, he is not employed in the superintendence of the erection, whether in consequence of the abandonment of the works by his employer, or from any other cause. That such rates of commission are exclusive of travelling expenses, allowance for time, and the charges of the measuring surveyor (which are paid to such measuring surveyor by the builder if the work proceeds, and by the employer of the architect if it is abandoned). He quoted the opinion of a committee of the Institute of Architects, to the effect that, although this was the customary charge, it ought to be at least 3 per cent. He drew a distinction between drawings requisite for showing how the designs could be carried into effect as asked for in the clerk's first letter to which we have referred, and the drawings afterwards made by order of the visitors necessary for obtaining tenders in competition: and finally he considered the charge made (1,048*l.* 15s.) fair and proper for the employment specified.

On the 26th November, 1855, the arbitrator made his award, and found that the amount due to the architects beyond the premium of 157*l.* 10s. previously paid was 498*l.* 16s. making together 656*l.* 6s.; and he directed that if the action was maintainable against the clerk, that then he should pay all the costs (taxed) of the suit of the arbitration and award. That if not, then both parties were to bear equally the expenses of the reference and award. The committee raised the question at law, that their clerk was not liable; that though they might owe the architects money, they had no fund or money to pay them with, and that by law the architects had no remedy against them individually or collectively, or against their clerk. On this question the arbitrator, by mutual consent, drew up a special case, to be argued before the Judges, the real question being, *by what form of proceeding, and against what parties the above-named sum could be recovered.*

On the 29th ult. the case was argued by counsel on both sides in the Court of Common Pleas.

Chief Justice Jervis said—This is a very important, and in some measure a difficult case. I and my learned brothers have, since the last hearing, given it our best consideration; and though I am not free from doubt, yet I think that the plaintiffs are entitled to a judgment. Looking at the Act of Parliament, I think that the legislature intended that the Visitors should be a body with power to act on behalf of the county, to select designs, and enter into contracts, subject to the approval of the magistrates assembled in Sessions, and finally, that of the Secretary of State. It would appear that in the first place the Visitors applied for plans, and agreed to pay the sum of 150 guineas to the successful competitor, on condition that, if the plan selected as the best were eventually carried out, it should not be paid for, but be taken as paid for in the sum paid for the erection of the building. Plans were sent in, and that of the plaintiffs was selected: and so far the proceedings were in accordance with the 17th section of the Act. It is my opinion that the Visitors were acting strictly within the scope of their authority: the legislature contemplated that they should have power to superintend the erection of the building, or to buy or lease one, so that it is clear that they had power to enter into contracts: they did enter into a contract, and the question now is whether it could be enforced. Now, the legislature never intended that public officers should be personally liable, and so by the sixteenth section provided that they should sue and be sued by their clerk. I think that was only in order to afford an easy mode of doing that which they were liable to without. The next question is, are they liable for the work done in addition to the supply of the original plan? I think that they are; for, if they had power to make a contract for the building, they had power to order specifications and working drawings: they did order them, and the question now is, whether the plaintiffs have a right to be paid for their work and labour done. I think they have, and my judgment therefore goes for the plaintiffs on both points.

Mr. Justice Cresswell, Mr. Justice Williams, and Mr. Justice Crowder fully coincided with the Chief Justice, and a verdict was recorded for the plaintiffs.

The conduct of the Committee of Visitors of Cambridgeshire, Isle of Ely, and borough of Cambridge, in this affair, needs no comment from us. Messrs. Kendall, Cope, and Edlin, have achieved a useful victory, though in a pecuniary point of view their personal profit will probably be small.

MR. PETIT'S LECTURE.

THE PRESENT MOVEMENT.

I was prevented from hearing Mr. Petit's lecture on "Utilitarianism in Architecture," and knew it only from the report you have given, which I presume to be a pretty full one. With nearly all which is really on the subject he puts forth as his title I most cordially agree. His remarks are replete with good sense, and rich in useful practical hints, as indeed are all Mr. Petit's writings.

It is almost idle to state on what point I differ from him. There are, as every one knows, two parties among those who give attention to architecture at the present day—those who favour, and those who oppose, the revival of Gothic, as distinguished from Classic architecture; and the mere statement of which side different individuals chance to take, is as unimportant as it is uninteresting; and in the present instance, it is of so little consequence to your readers whether Mr. Petit happens to think one way and I another, that I must really apologize for intruding upon them with apparently so very little to say; for *de gustibus non est disputandum;* and really all which Mr. Petit and a hundred others have to say on one side, or those who think differently say on the other, amounts in the end to little more than registering our individual votes on our several sides. Of course, every one has something to say about his opinion, but as matters of taste depend not on *argument*, but on *feeling*, we never practically get beyond the simple registration of our suffrages.

If Mr. Petit takes more interest in a railway shed than in the best modern churches, or if I happen to feel more interest in the revival he repudiates than in works of infinitely greater pretension of the style of the last two centuries, no statement of our reasons will influence either of us, or perhaps any one else. Still, however, it may be well, if only for form's sake, to state one's dissent, as well as one's regret, at not having on our side a man for whom personally, as well as for his remarkable talents, I feel so strong a regard as Mr. Petit.

Mr. Petit, as all the world knows, published in 1841 a delightful book on Church Architecture. In that book he did not, it is true, express himself strongly as to the probable success of our revival then recently commenced; but the express object of his book was to promote it. Throughout the whole of the book he seems to take it for granted that our future churches will be Gothic. He accordingly urges strongly the study of our ancient buildings, points out their excellences, and presses the revival of their spirit.

"The builder of churches," he says, "ought to make observations on the most extensive scale, to collect examples from other countries, and to look upon those of his own not as inconvenient old fabrics, which he may one day have to enlarge or rebuild, but as models of grace and dignity, from which he may gain much instruction. He should measure most accurately both the lines and angles of many humble and unpretending structures, which the antiquary and even the artist disdains to notice. He will thus learn, not to imitate, but to invent, perhaps to mark the period of his labours by a style distinguished from that of his ancestors, otherwise than by its meagreness and deformity."

Let it not, however, be said, that he raised his expectations high, and that fifteen years' experience has disappointed them. He did *not* do so. Let us hear him again.

"But, above all, let the architect himself be prepared to sacrifice much. Let him not grudge his time and labour to a task of which he cannot hope to reap the honour and profit: let him be content to lay the foundations of an edifice which a future generation shall see completed; to toil for the recovery of hidden principles and lost harmonies which the master-spirit of a succeeding age may awaken into life and perfection;—or else let him not seek to be entrusted with the humblest edifice dedicated to the service of the Almighty. To this self-devotion we owe the monuments of ancient piety: their builders were not led by ambition,—they sought not, and received not, the rewards of personal fame. Few of their names are known, while their works are the admiration of posterity."

Now, what can this mean but that the architects engaged in the Gothic revival were not to expect in their own day the honours of success, and that they were nevertheless not to allow themselves to be discouraged by apparent failure? That, like the husbandman, who "waits for the precious fruit of the earth, and hath long patience for it," we should also be patient, though we may see no fruit in our own day; and "be content to lay the *foundations* of an edifice which a future generation shall see completed."

How does the sentiment—noble as it was just—accord with his present statement,—"I now feel that if genius, talent, or knowledge could have ensured success, the revival would have been already complete?"

They can only be reconciled by placing the writer in the long catalogue of those who preach what they do not practise, and who utterly fail in the exercise of the patience which they enjoin upon others!

Instead of a whole generation which Mr. Petit stated, in 1841, to be likely to elapse before seeing the fruit of our labours, fifteen years' only have passed;—some, alas, of our band have fallen early victims of too anxious labour,—but those who were young when Mr. Petit exhorted them to patience are still but in middle age; and many, whose boyish zeal was stirred up by the works of Mr. Petit and others, are but now commencing an enthusiastic and honourable course of active exertion. I would then ask any dispassionate observer, whether the progress made since Mr. Petit first wrote, has been so disproportioned to that which he led us to expect *in an entire "age,"* as to warrant his breach of the patience which he urged upon others, and his conclusion that the success of the endeavours he so eloquently encouraged may now be deemed hopeless? I do not hesitate to say, that the *very contrary* has been the case. The progress, though slow, as Mr. Petit warned us to expect, has been sure and substantial, and in my opinion, with all its drawbacks, such as would have astonished us in 1841, had we been able to foresee it.

Architects must not be considered to be free agents: they are not allowed to advance as they would wish: they have in many instances to fight almost every step: unreasonable employers; non-employers whose patronage they might have justly expected; those who oppose their movement; and ill-natured critics among those who favour it; the disquietude of the age, which denies them time for study; and the coldness of all around them which "checks the genial current of the soul," are all so many daily and hourly clogs upon rapid progress. I do not hesitate to say, that no set of men possess so much enthusiasm as the Gothic revivers. They work from real and deeply-seated love, and every hindrance and every chill gives them deep pain. They have little patience with themselves, but they merit all the patience from others which Mr. Petit urged, but himself denies.

Mr. Petit himself, in 1841, says of the architect:—

"Can we say that he has generally met with that support and encouragement which he has a right to demand; and which being withheld, we cannot look for those efforts on his part that will secure excellence? I do not speak merely of pecuniary reward: this is the last inducement which will influence a man of genius, even working for his subsistence. But do we give him that encouragement which can only be afforded by a due appreciation of his works, by discriminating praise, by fair and candid criticism, by congeniality of taste and feeling? Does he not in most cases stand alone, or supported only by such assistance as he would most willingly dispense with?"

In spite, however, of all hindrances, I do assert that we have made great and signal progress. It is quite true that the country is studded with churches, the majority of which scarcely reach mediocrity; but this is only parallel to what is the case in other styles. The system of the day places the majority of works, in whatever style, in the hands, not of the small band of architects who follow their profession as an *art* to which every feeling of their hearts is devoted, but in those of the many who follow it as a *trade*. And I speak advisedly when I say, that not one church in five is placed in the hands of those who care a jot about the success of the revival. As one of the examiners for the Church-building Society, I can assert that a large majority of the new churches are designed by persons who have given no attention to the subject—persons employed through local interest, through competition, and through the utter ignorance of the employers; while young architects of undoubted talent, and having both knowledge, skill, and enthusiastic zeal, go unemployed because they will not stoop to the arts which the public seem to consider the necessary passport to their favours. It is no wonder that the works of such men cause our movement to be regarded as a mere fashion; but, happily, there remains a firm band who work from no such motive, but from pure and earnest love and devotion; and I cannot but feel confident that labour which proceeds from such feelings will eventually be successful, though even that may stand in need of the patience so eloquently preached, but so little practised by my friend Mr. Petit.

With all its disadvantages, however, and its partial failures, I challenge the history of art to show in any fifteen years such a revolution as has been effected in church architecture between the years 1840 and 1855. What we have done is open to all kinds of criticism, and we see our faults and weaknesses too clearly to allow us to object to their being pointed out by others; but with all our failures we have worked a vast and signal revolution; and, which is much more important, we are prepared and determined to carry it on to its ultimate consequences, and to develope the style which we have thus far revived into *one of our own*, independent of precedent and of antiquarianism.

Mr. Petit, fifteen years back, spoke in terms of praise of a church then recently built in Staffordshire. A friend of mine, who stands very high in our profession, was lately referred to this by an admirer of Mr. Petit's works, and actually took a journey to see it, when he found it so utterly bad as to be beneath all criticism. I mention this, not in disparagement of Mr. Petit's judgment, but to show the progress which has converted what he then praised into an object almost beneath contempt. Mr. Petit has, since that, honoured one of my own churches in the same way, yet this church would now fail of being admitted as a favourable exponent of our progress. The same result will ever be found by comparing parallel works of a few years back with those of the present time. It is true that the same architect may fluctuate; but compare fairly the works of those who are in earnest in our revival, and you will find them to display unequivocal signs of a regularly progressive advance. We may wish that this advance were quicker, but its existence, on Mr. Petit's own showing, is sufficient to encourage us to patient perseverance,—not to mention that it is to our movement that we mainly owe the growing appreciation of "Utilitarianism in Architecture;" of the great principle of making utility and construction conduce to beauty; and the exposure and repudiation of the degrading system of shamming and deception which was eating away the very vitals of our art.

The great weakness of modern art is the *inconstancy* of the public taste,—and I can conceive of nothing more injurious than the course followed by Mr. Petit, of first fostering a great movement by a series of publications eminently calculated to promote it; and, when it has so thoroughly taken root as (in its own department) to have driven all competitors out of the field, and placed itself in a position to commence a healthy course of development such as can alone make it a genuine offspring of our age, to turn suddenly round and throw cold water on the entire movement! It is this waywardness and fickleness of taste which makes architecture contemptible. People follow one style as the great panacea till they chance to visit a country they have not before seen, and come home filled with new notions, which they urge upon others till they happen to make another tour, which pushes the last idol from its pedestal, and enshrines a new one, only in its turn to be overthrown. This frivolity and unsteadiness of aim will destroy success in anything. It is only those who fix their aim steadily on one object, and make whatever else they meet with contribute its quota towards its accomplishment, who have a chance of ultimate success.

The fact, however, is, not that *we* have failed, but that *Mr. Petit's* views have changed. He may be unconscious both of the fact and of its causes, but others can pretty readily appreciate both; and Mr. Petit will perhaps pardon me if I give a rough guess at the latter.

Though a clergyman, Mr. Petit's tastes (so far as they bear upon architecture) are rather artistic than ecclesiastical. Many, on the other hand, who have promoted our movement, have been rather ecclesiastical than artistic in their views; and, as is usual with all zealous persons, have been guilty of many exaggerations, and not a few frivolities. Mr. Petit's turn of mind is eminently one to rebel against such eccentricities, and would lead him to attribute to the whole movement what is in fact the mere boiling over of undue warmth and unrestrained enthusiasm. Again: those who have taken the more ecclesiastical view have not received Mr. Petit's works so kindly as they deserved. They were too purely æsthetical for them, and were not warmly responded to. This, though Mr. Petit's kindly feelings render him incapable of bitterness, would increase the coldness between him and the party in question. Then, again, he would see in the criticisms of that party much waywardness, and not a little unjust partiality, against which his natural sense of justice would rebel, and which would tend to convert coldness into something bordering upon hostility. To crown all, he would see this sweeping criticism especially directed against one of his most intimate friends, Mr. Winston—a man whose temperament was less calculated to bear quietly with it than his own. Mr. Winston's services to our revival have been of the most important character, but his feelings have clearly been so warped by the criticism he has received that he has almost been converted into an opponent of the entire movement, and can scarcely restrain himself from converting his valuable lectures on stained glass into mere philippics upon the Camden Society; while every one who knows him and Mr. Petit is well aware of the influence which this has had upon the kind and generous feelings of the latter gentleman. Thus prepared by a gradual process to fall off from us, Mr. Petit has revisited Italy, and (with the eye of an artist) seeing beauties in what he once viewed as "a miserable display of wasted labour," he now finds the elements of some imaginary future development, where once his mind "dwelt with pain upon the professed abandonment of those principles by which alone art can be advanced, or preserved from falling into decay."

Mr. Petit's list of failings in Gothic architecture do not appear to me to need much remark, being merely attempts to excuse his own change of opinion.

If many Gothic buildings have mouldings of too great a depth, others are not moulded at all, and he has shown us that some French examples with plain bold mouldings look the best. Surely, then, this fault is not essential to the style! Nor do I believe that the decay of our mediæval buildings is owing to an excess of moulding. It simply results from the humidity of our climate, and the inferiority of much of our stone. Where the stone is bad, we find the plain ashlar gone as well as the mouldings, and where good stone is used, the ornamental features are often as well preserved as the ashlar. Classic details are as little proof against decay as Gothic. Where do we see a more shapeless mass of hopeless rottenness than All Saints' Church at Oxford, built in the Palladian style at the time of Queen Anne? Are the Peckwater buildings, the Clarendon, and the theatre in the same city, better preserved than Gothic buildings of twice their age? And has not the exterior of Inigo Jones's Banqueting-house been wholly renewed in our own day? The only thing which makes Sir Christopher Wren's buildings other than masses of decay, is the happy introduction in his time of Portland stone. The constant reparations of French cathedrals proceeds far less from the actual decay of their material than from the rage for freshness of surface which unhappily prevails so strongly in that country.

It is quite true, that where any special weight is to be carried, the form of the arch should be proportioned to its load. The pointed arch carries greater weight, and has less outward pressure than the semi-circle; but still there are places where the latter may be theoretically better, though, for my own part, while I have severely suffered from the tendency of the round arch to spread laterally, I have never yet experienced the tendency of the pointed one to rise in the centre. The one is a practical fault which any one will find if he does not look well to his abutments: the other is little more than an imaginary imperfection. The great superiority of the pointed over the round arch is that the former may be made of every conceivable degree of lowness or height which its use or position may dictate, while the latter is the same under all circumstances; and even if we throw the segmental arch into its scale, all we can say is, that it may be of any height not exceeding half its span, while the pointed arch may be of any height you please. But if this argument does not claim for it the preference, Gothic architecture puts in another claim, viz. that of freely admitting not only every kind of pointed arch, but also (as Mr. Petit has himself shown) the semi-circle and the segment, uniting in itself all kinds of arches which are founded on the circle, and not, that I know of, excluding any other form.

The question of how far it is legitimate for ornament to imitate constructive features, is one well worthy of a careful and philosophical investigation. I think there should be limits to this; and, if the old Gothic builders carried it to excess, it is a point offering us a fair opportunity in which to improve upon their practice and develope for ourselves.

The objection, on the ground of an imperfection (real or imaginary) in one pattern or tracery, appears to me almost puerile. Surely Gothic architecture does not hang upon the mathematical exactness with which a circle will stand upon two arches! With good management the objection vanishes, as the width of the tracery-bar fills up the notch complained of. No one has had much to do with architecture without knowing that little mathematical inaccuracies beset him in every style, which it is a part of his art so far to abate as to render them inoffensive.

The objection to that concentration of pressure which gives buttresses a functional predominance over walls, certainly, if an objection at all, does not apply to the majority of churches which we are likely to build, and which are devoid of vaulting. This, or any other principle, may be carried to excess, but *we* are quite safe on that score. I may here be met by Mr. Garbett's argument, that in omitting the vaulting we make our buildings imperfect. This I simply

deny. I grant that a vaulted church is the fullest development of the style; but I hold that a Gothic barn is as good a building in its way as a cathedral. I yesterday visited an abbey barn after spending some hours in a cathedral; and the idea of one being, of its kind, a less perfect building than the other, or less carrying out the principles of its style, never so much as occurred to me. Mr. Petit's objection to Gothic churches because they cannot compete in height with the gigantic houses which may surround them, seems to me both sophistical and erroneous. It is manifest that *no* ordinary church can compete with some of these overgrown piles; but surely a Gothic church is likely to be higher than any other; and the argument that it will fail the more manifestly from the fact of its making the most of its height, I do not hesitate to pronounce utterly fallacious. The very fact of its differing *in kind* from the lofty houses will diminish their influence upon it. A tall man makes a short man look shorter; but he will have no such influence upon creatures of another species. I heartily thank Mr. Petit, however, for his very valuable suggestion of bringing *mass* to bear against height. I shall certainly endeavour to avail myself of it.

I must apologise for the length to which I have extended my remarks. I have no hope of shaking Mr. Petit, or influencing those who agree with him. If he should think it worth while to notice what I have said, though I have no idea what line he would take, I doubt not that he will (as a clever man always can) perfectly satisfy all who already agree with him. My object is rather to prevent his unsettling the minds of those who had embarked in the same course with us. These I exhort not to be shaken by the changes of others, but, having chosen their course, to pursue it with patience and determination. I doubt whether, if Mr. Petit had the least idea of the enthusiasm and earnest zeal which exists on our side, and how completely it is with us a matter of heart and of love, and how little one of mere fashion, he would not, even now, throw the weight of his influence and knowledge into our scale, and assist us in getting over the difficulties, and in avoiding the imperfections, which he perceives, rather than attempt to quash a movement which, for unity of purpose and heartiness in the pursuit of it, has no parallel in the history of modern art.

Geo. Gilbert Scott.*

FOREIGN ART AND SCIENCE NEWS.

Rome.—Restorations.—The Loggia in the castle of the Vatican Palace, whose stucco works and frescoes had much suffered by time, has been completely restored. The majestic porticoes also on the Place before St. Peter's Dome, in the midst of which stands the obelisk of Caligula, have been restored. Especially the 162 saints and founders of monastic orders, who stand on the balustrade which runs around the roof and its galleries towards the Place before St. Peter's, are now restituted to their original condition.

The New Rhine Bridge at Cologne. — The Building Privy Councillor, M. Anders; the director of river constructions, M. Nobling; inspector of the Rhine navigation, M. Britzke; and the water architect (Wasser-Baumeister) M. Crewes, have inspected the terrain destined for the above huge structure, about the suitability of which doubts had arisen. The commission, however, confirmed the first plan.

* In my notice (in your last number but one) of the accidental errors in Mr. Petit's remarks on the abbey kitchen at Fontevrault, I was, as Mr. Petit says, under some misapprehension from not knowing when I wrote that he had illustrated them with sections, &c. which I learned after I had sent you my remarks I am not aware, however, that this led to any error, beyond my saying that no allusion had been made to the pyramidal roof, for which I beg to apologise. The points which I wished to correct, viz. that the building was a kitchen, not a chapel; that the apses are on the sides of the octagon rather than its angles; and that there was an object in its somewhat complex construction, are not affected by it; and as these all bear upon the utilitarian qualities of the structure, I thought it might be well to point them out, though the subject is of but trifling importance. I regret that Mr. Petit appears annoyed by my doing so: I must, however, add in self-defence, that the question of the position of these apses is "not merely one of words," as, with the exception of external appearance, the evils of one arrangement are avoided, and the advantages of the other attained; and Mr. P. will find that he referred to construction, stability, and convenience, as well as appearance. What I wished to point out was, that the complexity of the construction (which I dare say was needless) did not arise from any misplacement of the apses, they being placed as Mr. Petit stated that they ought to be.—G. G. S.

A Novel Science.—The researches and results of the Abbé Paramell, to discover sources of water in every soil, have been long known. Now, M. P. has brought his doctrine into a perfect shape, and has published his work under the title, "L'Art de découvrir les Sources."

Florence.—The Amazon Shield.—This important work of mediæval sculpture has caused much controversy of late, men like Cornelius having taken part in the dispute. The following is its history. Through the chances of a general ransacking of all the collections of Europe, this costly shield had been sent with other plate to a Jew at Cologne. One of the persons who saw it by accident, was the painter Osterwald, who, understanding its value, induced his brother (a dealer in art-objects) to buy it. Hence the fame of the Amazon shield became spread over Germany, and Osterwald made a lithograph of it in its natural size. Cornelius, when passing through Cologne, saw it, and recommended the king to purchase it for the Berlin Museum. The king, on seeing it, said smilingly, that "he was not rich enough to purchase it." The King of Hanover also entered into negociations; but out of delicacy awaited the decision of the king, who finally bought it. Besides the lithograph, a galvanoplastic *fac-simile* in silver had been made of the shield, at the Sayner works, and it was one of those specimens which was presented by the Duchess of Sutherland to the members of the Cologne *Gesang-Verein*. It has been much debated whether this shield is by the hand of Benvenuto Cellini: on comparing it with the many works of that master in the Ducal Collection of Florence, some doubt may be entertained thereon. Still the work belongs to the best Italian period and style. It is worthy of remark that a shield of similar character was designed by Cornelius, executed by the first silversmiths of Berlin, and is now to be seen at Windsor Castle.

SIR ARCHIBALD ALISON ON ARCHITECTURE.

At a recent meeting of the Architectural Institute of Scotland, held in Glasgow, Sir Archibald Alison made an address, of which we now give an outline.

It had often occurred to him, the speaker said, on walking over their city and attending to the prodigious increase of architectural ornament, that they were deeply indebted to the Architectural and other similar Institutes in different parts of the country, which had spread so far the taste for ornament of this description, and led to so large a proportion of the surplus wealth of the country being employed on works of architectural ornament and utility. If any city in the world was called upon to devote a large portion of its surplus wealth to such works, it was Glasgow, which at once possessed the wealth that was absolutely necessary, and also the durable stone which rendered the works almost immortal. They had only to look at the Cathedral, which had stood for 600 or 700 years, to see that a building of such material once erected was destined to elevate the minds of men through many centuries. In surveying the various edifices which had been raised in this and other cities of the empire of late years, all must have been struck with one observation, that while in them all we perceived a great striving after excellence, there was a great difference in the degree to which that excellence was attained. Now, he believed, the great object was to see what was the *principle* upon which each style should be founded, and thus discover both what was the leading principle which each style should bring out, and by what way. By a violation of that principle the most costly efforts proved unsuccessful. If we looked back to the history of architecture, we should find there was a leading principle in all the different styles of architecture which had existed from the earliest times, and in different nations, and that perfection was to be attained in each only by following out the principle upon which the style was originally formed. The earliest works extant were the Egyptian, and the principle of the Egyptian architecture was the cavern. The Greek architecture was perfectly different. Its principle was the principle of the beam, obviously imitations of temples of wood, with no imitation in any part of the cavern or of the rock. Accordingly the Doric architecture, which was the earliest style, contained exactly the large straight trunk of a tree, with some chiselling down at the side. The principle of Greek architecture was, strictly speaking, one story only, and that with straight lines. The principle of the arch was foreign to Greek architecture. It was to be found in the *cloacæ*, but there was no example of it in the edifices. It followed from this that the ornaments of the Greek architecture were such as might be expected in imitations of wood. The roof was supported by two beams meeting on the top, and the triglyphs were the ends of those beams projecting at the side. The Romans introduced the arch, and in addition to that, the laying of one tier of building above another. They introduced the different stories. The Coliseum exhibited three different orders of architecture—the Doric, the Ionic, and the Corinthian, above each other, each perfect in itself, and each the order of a separate story. The orders were the same as the Greek, but they introduced an arch between the columns, and put the Doric below, the Ionic in the middle, and the Corinthian on the top. The reason was, that in a city of such magnitude as Rome, ground was of such value that they could not afford to spread out their edifices as the Greeks did, or as was done at Pompeii, where there were no edifices higher than that room. The Gothic architecture was neither an imitation of the Roman, Grecian, nor Egyptian; but its principle was the imitation in stone of willow rods. No one could look at a Gothic cathedral without seeing that the ornaments, down to the minutest description, were all imitations of willow rods. It resulted from that, that the roof of the Gothic architecture must be entirely different from that of either the Roman, Egyptian, or Grecian. The Gothic architecture necessarily involved a lofty roof to close in those arches formed by binding the willows together. There was another style of architecture not much known in this country, but which prevailed more widely than any other, and that was the Saracenic, and the principle of that architecture was the tent. Now, he suspected, as these were the obvious principles of the different styles of architecture, the cause of failure was not attending properly to the principle upon which each style was formed. He apprehended the Greek architecture was the one, of all others, best adapted to public edifices, where we only required a single room. (For a church, the Gothic architecture was the one peculiarly adapted.) The Parthenon, the temples of Theseus and Ægisthus, were so many models of perfection that would never be exceeded in edifices of that sort. Accordingly, this style had been attempted in our own country with eminent success. He never saw the buildings on the Mound, at Edinburgh, without thinking how admirably adapted the Greek style was for a single room. There was another style required in cities—the architecture of what we call tenements. For that it had been his decided opinion for many years that no style was better adapted than the Roman, as carried out in the Coliseum and the buildings of Venice. Each story should have its own appropriate ornament: there should be a bar between each story with the ornaments appropriate to its style. But where this style of architecture was adopted we must have the upper story the highest, and a flat roof, and nothing but a balustrade on the top, for a roof on the top of this style was inconsistent with its style, and never failed to injure, if not destroy the effect. The principle of houses in the country was quite different. There, there was no pressure for room. If a man were to build a Palladian front in the country, every one would see the impropriety of it, subjecting the inhabitants to the inconvenience of going up stairs. For country houses the proper style was either the Abbey-Gothic style, or it was the Grecian style with open colonnades. But if we came to have Grecian columns in the outside of a building, it was necessary that the columns should be entire columns, and should be in front of the edifice, and cover a certain space, being the colonnade intended to afford a walk sheltered from the sun in warm climates. They should not be ¾ columns applied to the building. This style was taken from the habit in warm climates of having a space sheltered from the sun and the rain. If we had the columns in front of the edifice, then we had a shade between the columns, which gave the effect of Greek architecture; whereas, if they were applied to the building, then they gave no shade at all, and there was no use of them. He would here mention, in particular, as the finest existing specimen of this style, the famous colonnade of the Louvre. The Madeleine and all the public edifices of Paris had these colonnades. How beautiful was the effect of the colonnade at Hamilton Palace! It was quite suitable, in connection with them, to have pilasters at the side, corresponding with the style. In regard to the Elizabethan style of architecture, so much used in the country, no style was better adapted for edifices of that sort, and it was great matter of congratulation that so many buildings of that kind were going up in every part of the country. The principle being irregularity, any one addition did not disfigure the symmetry of the building, but rather the opposite. In regard to the Gothic architecture, there were two

most important observations to be made. It was the very reverse of the Grecian. The roof was not only an improvement, but a necessary part. It was as great a deformity in it not to have a roof as in the Grecian architecture to see one at all, because the principle in the Gothic was to have high columns going up, terminating in a lofty aisle. Of course, the aisle must be covered on the outside, and we must use the roof; and the higher the roof the more beautiful the building. The freemasons who built these cathedrals possessed architectural taste in no ordinary degree. They put flying buttresses and pinnacles, which concealed the uniformity of the slate or stone roof, and made it an additional beauty instead of a deformity to the edifice. In regard to the sides of the building, the Gothic architecture was a style in which the ornaments, being the imitation of the willow-wands, must be very minute, exquisitely beautiful when seen near, but invisible at a distance of 200 yards. But the Gothic architects, being aware their ornaments could produce no effect at a distance, constructed the building itself in the form of a cross, the effect of which was, that the light of the sun, wherever it fell, was sure to throw a great mass of shade beside it; and thus, in the language of Scott—

"Buttress and buttress alternately
Seemed formed of ebon and ivory."

And, let it be seen at the distance of fifty miles, it was still a most impressive object. Any person going to Westminster-bridge, and looking at the front of the Houses of Parliament, though above a million sterling had been laid out on them, would see that the effect of the front to the river below the roof was a decided failure, for want of the cross part of the edifice, or lateral chapels or flying buttresses. These were not wanted in the Grecian style. A row of columns, 60 feet in the shaft, would be a most magnificent sight. The shadow between them would of itself charm the eye at any distance. If the Temple of Diana at Ephesus were, by Aladdin's lamp, removed to that place, everybody would be fascinated by the spectacle. In the Cathedral of Cologne, where there were plenty of projecting parts, there every one would see the success of the principle. Great also is the effect derivable from statues upon grand pedestals, and also from public fountains. He needed not tell the meeting what was the effect of fine statues. A statue, independently of its own beauty, formed a foreground, and added immensely to the beauty of the adjacent building. A traveller to Munich, Parma, or Berlin, found a statue in the vicinity of every public building. The fountains in Trafalgar-square had often been laughed at, but if not perfection, they are at least a step in the right direction. They are not so fine as those in front of St. Peter's at Rome, but he wished we had some more of them. But if any person doubted the effect of these fountains, he had only to go to Sydenham and see the fountains at the Crystal Palace, which, in point of beauty and height, far exceeded any he ever saw on the continent. They were 100 feet higher than those at St. Cloud, and also higher than those at Versailles. What would it be if we had such fountains playing up in the centres of all our great squares, and then flowing down in all directions in granite conduits, diffusing health, coolness, and cleanliness in every direction!

THE BRITISH INSTITUTION.

IT is much more pleasant to praise than to find fault; but, as the truth must be told, the present exhibition of modern works of art in the gallery of the British Institution is not a good one. It contains a number of quite worthless pictures, and very few works of great merit. The two pictures of highest class are Sir George Hayter's "Martyrdom of Ridley and Latimer" (No. 60), and Mr. Louis Haghe's "Choir of the Church of Santa Maria Novella, Florence (148); but neither of these will do much to advance the reputation of the painters. The first is disfigured by a heavy, untruthful sky (as if after the burning, by the way, rather than before it), and general feebleness; and the second, although painted in parts with great power, is wanting in sentiment and feeling, to say nothing of the doubtful perspective of the right side of the apartment, and is altogether inferior to those fine works in water-colour which have made Mr. Haghe's name famous. Mr. Ansdell exhibits an excellent specimen of his art, called "Severe Weather" (16), in which the rams, life-size, are wonderfully well painted. Mr. Buckner's "Roman Piper" (177), and some of his other pictures; "The Cradle," by Deane (74); "Little Gretchen," by H. Le Jeune (246); Mr. Hardy's "Dinner-Time" (402), and "An Interior" (491); and "Maternal Love," by G. E. Hicks (393), are very charming pictures. "The Ptarmigan's Haunt" (339) by J. Wolf, is a remarkable work, painted with minute care in the details, and yet not wanting in general effect. Mr. Dearle has several very clever small landscapes, which should be looked at; and in this department, indeed, there is no lack of excellence. We may especially mention "A Scene suggested by the Death of Pompey" (184), by T. Danby; "Winter Evening" (204), by C. Branwhite; "Dunolly Castle" (432) by J. Danby; "Squally Weather off Dover" (520), by John Wilson; and H. J. Boddington's "Close of a Summer-Day" (533). Lance has one of his marvellous representations of fruit (42); and Miss Mutrie's Azaleas (22), and Magnolia (91), will delight all who love flowers.

PROVINCIAL NEWS.

Chesterton (*Staffordshire*). — New national schools have been opened beside the new church and parsonage in the centre of this village. The schools were erected after designs furnished by Messrs. Ward, of Hanley. They comprise the main school, a room 65 feet by 18 feet, infant school, 35 feet by 21 feet, and two class-rooms, containing galleries. Connected with the girls' school are industrial buildings (not yet completed), where the elder girls will have the opportunity of learning household work—such as washing and getting up linen, cooking, &c. There is also a master's house, not yet completed. The schools are so planned that the whole of the area can be thrown together for purposes of a public meeting, lecture, or concert. An effect is produced in the main school by an arrangement of common blue and red quarries round the room to the height of 4 or 5 feet, with a few of Minton's tiles introduced, a gift from that gentleman. The builder is Mr. Booth, of Lawton.

Wells.—Several new buildings are to be shortly erected in or near this city. Besides a new church in the east part of the town, there will be a new banking-house in high-street, and a new paper-mill of some extent at Wookey Hole.

Liverpool.—This thriving town is ever on the change with building improvements. "Almost every week," says the local *Times*, "it is our pleasing duty to record the downfall of old habitations to make way for the erection of handsome new buildings. These spirited endeavours to improve our street architecture have been mostly effected in the immediate neighbourhood of the Exchange, and, in the majority of cases, by private individuals. Water-street, Brunswick-street, Oldhall-street, and Dale-street have been, and are, undergoing the greatest changes. The lamentations of our contemporary, *The Builder*, over the cheap spirit of the age, which tempts people to try for how low a sum they can have a pile erected—with high architectural pretensions—does not apply to the recently-erected commercial chambers in this town, which possess, in an eminent degree, the four principal requisites,—strength, beauty, durability, and comfort. Many of them are fronted with stone, while the others are generally of red brick and stone dressings." Public improvements also progress apace. The pile of buildings on the south side of Dale-street, as well as those in High-street, are rapidly falling beneath the workmen's hands; and on the north side of Dale-street, from the old Gas-office to Hatton-garden, the shopkeepers are "selling off" previous to the razing of their premises to make way for the erection of new police-offices. In Brunswick-street, Oldhall-street, and Water-street piles of building are rising, and the note of preparation is heard in other parts of the town. This season promises to be a good one for all branches of trade connected with building. The local *Journal* states that the ground near the Town-hall purchased by the London Fire and Life Assurance Company for the offices, for themselves and others, which Professor Cockerell has designed, is said to have cost the purchasers altogether about 70,000*l.* or an average of over 50*l.* the square yard, some portion of it (corner of Dale-street and Exchange-street East) 70*l.* The old materials or buildings were sold week before last by auction to Mr. Williams, builder, for about 520*l.* the lots averaging 130*l.* each. The buildings are said to be in good condition. They are to be cleared away by the 20th March.

Salford.—The new day-schools which have been erected in connection with St. Simon's Church, were opened on Tuesday in last week. There are large rooms for boys and girls, and a lesser one for infants. The total cost has been about 2,200*l.* of which about 190*l.* have yet to be raised. The cost of land was 389*l.*; contract for building, 1,500*l.*; architect's bill, 100*l.*

Rosedale (*Yorkshire*). — Messrs. Peters and Co. of Newcastle, proprietors of ironstone, have let a contract to Messrs. Forster and Lawton, builders and contractors, Sunderland, to construct a tidal dock at Rosedale, between Staiths and Whitby. The dock will be about three acres in extent.

Glasgow. — The new Procurator's Hall is nearly completed. The keystones to the arches of the basement openings are sculptured masks of well-known celebrities of the bench and bar, including Lords Erskine, Mansfield, Brougham, Blair, Stair, Kames, Forbes, Reddie, Millar, Moncreiff, Jeffrey, Cockburn, and Rutherfurd.

THE WELLINGTON COLLEGE.

AMONGST the many honorary and monumental erections of all kinds and degrees of merit that the admiration of his countrymen have raised to the memory of the Duke of Wellington, none has taken the beneficial and permanent form that is proposed to be carried out in the institution which we this week illustrate,—an institution which is the result of voluntary subscriptions entered into under the highest patronage on the occasion of the Great Duke's death,—and which seeks to benefit the living while it honours the illustrious dead.

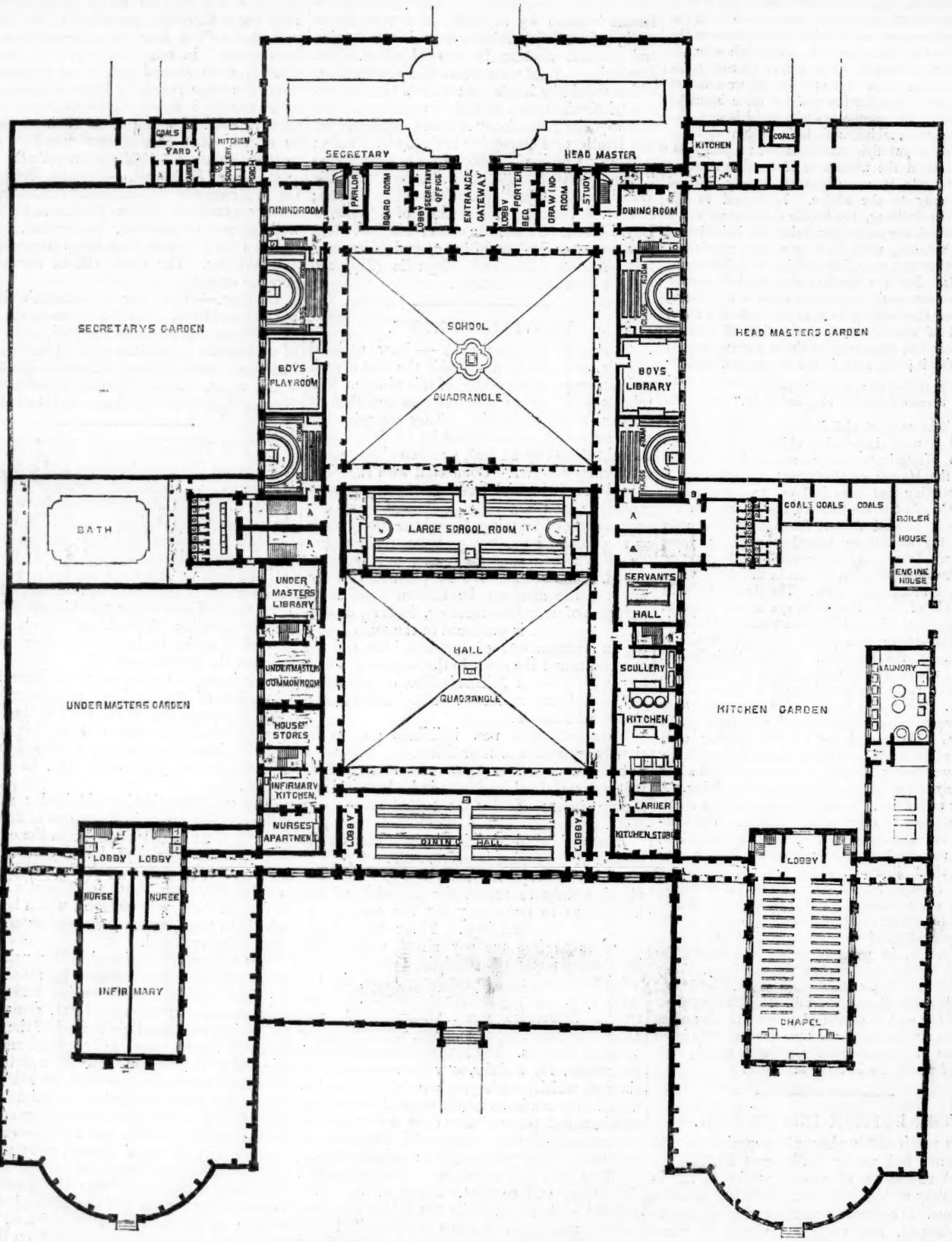
It is intended to devote the college for the education of the orphans of officers of her Majesty's army, and of the army of the Honourable East-India Company: these it is proposed to divide into three classes, admissible at rates of payment varying from 10*l.* to 20*l.* per annum.

The governors having obtained a site, consisting of 132 acres, in the parish of Sandhurst, near the town of Wokingham, in the county of Berks, situate on the Reading and Reigate Railway, and about ten miles from Windsor, requested Mr. John Shaw, of Christ's Hospital, to furnish them with designs, which being submitted to them, gained, we understand, their unqualified approval.

The college, as designed, will consist of two quadrangles, each surrounded by arcades, so as to afford perfect communication under cover. The northern or entrance front, shown in our engraving, contains, right and left of the entrance gateway, the apartments of the head master and the office, board-room, and the apartments of the house-steward. The first, or school quadrangle, has on its north side the buildings specified above; on the south side the great school-room; on the east side are two class-rooms or studies, with the boys' library; and on the west side two other class-rooms, with a boys' day-room. The second quadrangle has the great school-room on the north, and the dining-hall to the south; on the east, the servants' hall, kitchen, scullery, larder, and stores; and on the west, the undermaster's common room and library, with other apartments. The mezzanine in this quadrangle contains on the east side the house matron's apartments and stores; also the sleeping-rooms for the female servants; on the west side are the bed-rooms of the undermasters and those for the men-servants. The two upper floors of the east and west buildings contain dormitories for the pupils, who, to the number of 246, are provided with separate berths, each 10 feet by 7 feet, wherein each has his bed and ample accommodation for clothes, washing, and writing.

The buildings are to be erected of brick, those for the facings being picked of a uniform dark red colour: the dressings of the windows and quoins are to be alternately bright red brick and Box stone: the other ornamental portions, such as strings, &c. are to be of the same stone.

The contract being offered for select competition, resulted in the following tenders for the



PLAN OF WELLINGTON COLLEGE.

erection of the main body of the building, as described above, with all its enclosing walls and detached offices.

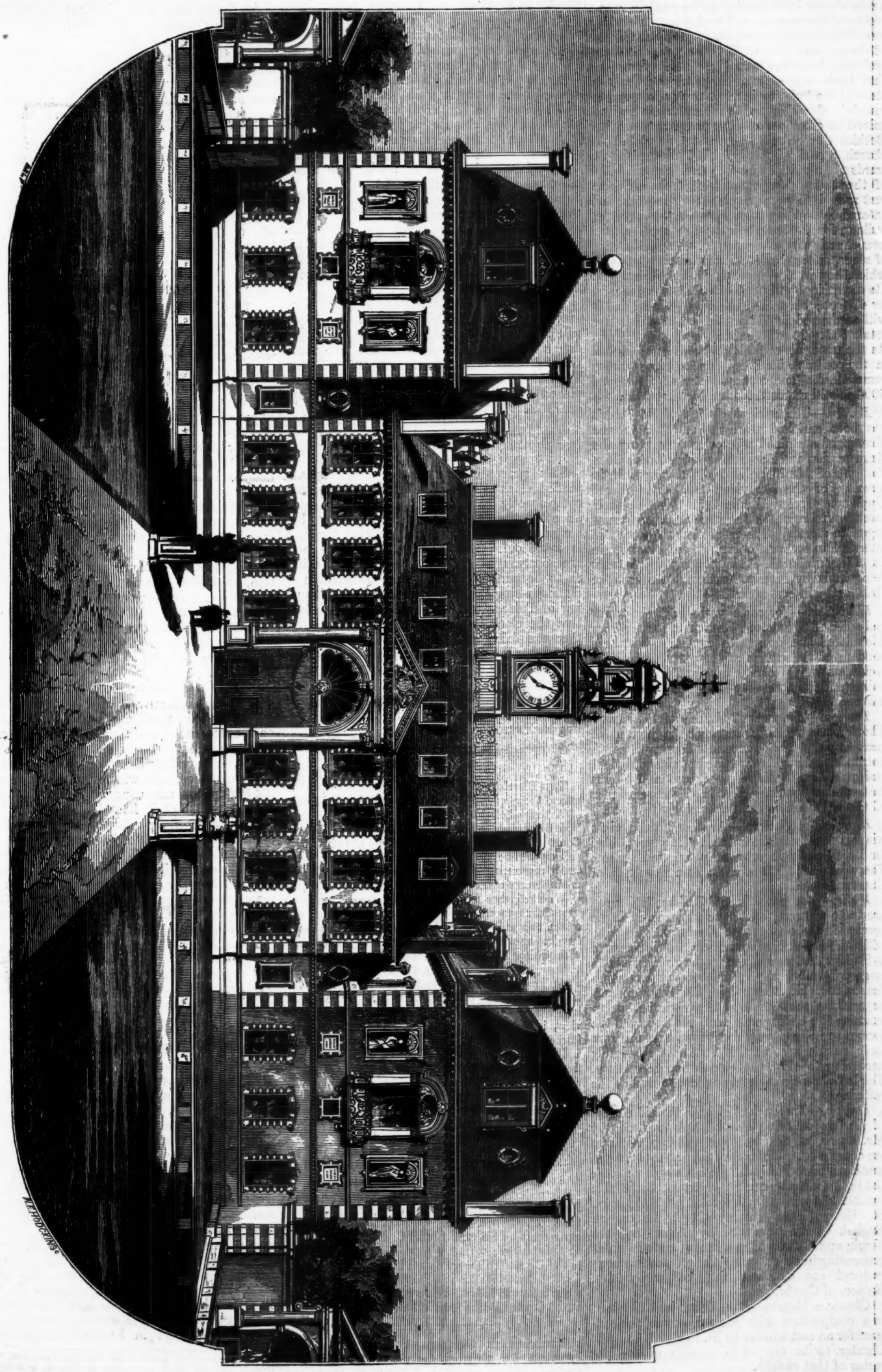
Haward and Nixon	£45,710
Cubitt and Co.	45,125
Piper	43,600
Lucas	42,026
Mansfield and Son	41,175
Locke and Nesham	40,471
Myers	38,127
Pearce and Gurrier	37,810
Kelk	36,865
Holland	36,175

From various causes, the tenders, though received near the middle of last year, and that of the Messrs. Hollands accepted, did not lead to the immediate progress of the works, which were deferred to the commencement of this year, but the builders are now busy on the site, and will soon show the extent of the buildings at present contracted for.

The design contemplates the erection of an infirmary and chapel, in advance of the main south front, but connected with it by arcades. These, however, form no part of the present contract; the funds that are applicable for building purposes not being at present sufficient for embracing the whole design.

The water supply is in the able hands of Messrs. Easton and Amos, and the heating and ventilation in those of the Messrs. Headen, of Trowbridge.

The site is worthy of a few words, having been selected by his Royal Highness Prince Albert, to whose judgment it does credit, being at once elevated, yet sheltered, and having an extended view to the south-west, reaching to Strathfieldsaye, the national gift to its great name-patron. The soil is a sandy gravel, dry, and admirably adapted for the purpose it is to be applied to, while the extent of the estate will afford many points for effective treatment, not the least of which will be the formation of a handsome sheet of water, for which purpose a special quantity of twenty acres were allotted by the prince; thus securing life for the landscape in lieu of a marsh at present existing on that particular spot.



WELLINGTON COLLEGE, SANDHURST.—MR. JOHN SHAW, ARCHITECT.

CHURCH-BUILDING NEWS.

Wheatley (*Oxford*).—The foundation-stone of a new church for Wheatley parish was laid by the bishop of the diocese, on Tuesday in week before last. The old edifice had latterly indicated signs of decay, and Mr. G. E. Street, the diocesan architect, inspected it, and reported to the effect that there was ground for anxiety as to the state of the building in a few years, if allowed to remain. For this and other reasons it was resolved to erect a new church on another site. Besides the value of the materials of the old church, a sum of nearly 1,500*l.* was raised towards the requisite amount; and the promoters of the undertaking commissioned the architect just named to prepare plans for the work, and entered into a contract with Mr. John Castle, builder, for its completion. The style of the new church will be Decorated. It will be built of stone, and surmounted by a tower and steeple, which, however, will not at present be erected. Its dimensions will be;—nave, 51 feet 4 inches, by 47 feet; chancel, 21 feet by 16 feet; and it will accommodate 412 adults and 99 children—total, 511. It will be dedicated to St. Mary. As the materials of the old church are included in the contract, its demolition has already been commenced. The sum of between 500*l.* and 600*l.* is still required for the building fund.

Barton.—The ancient church of St. Peter's has been enriched with the addition to the chancel of a stained window, representing the Resurrection and Ascension of our Lord. It is the gift of Mrs. Uppleby, of Bardney Hall, in memory of the late vicar, the Rev. George Uppleby. Messrs. Eddie have signified their intention to erect, in the same building, a new organ, in memory of their late father. It is also intended to erect an organ, by subscription, in St. Mary's church. The instrument is now being built by Messrs. Foster and Andrews, of Hull, and will cost about 180*l.*

Whetstone.—For some years past, the tower and spire of Whetstone Church were in a very dilapidated and dangerous condition, but these portions of the edifice are now restored. The architects were Messrs. Parson and Dain, and the builders Messrs. Lindley and Firn. The outlay has been 700*l.*

Thorley.—The ancient church of St. James, Thorley, has recently undergone a process of restoration. The Norman doorway, south entrance, and sedilia, two piscinæ, and an ancient staircase, have been restored, and a five-light east window has been put in. The remainder of the building has been extensively repaired.

Broadwater (*Sussex*).—Another stained glass window has been executed by Messrs. Gibbs, for Broadwater Church, and put up in its place. The work is the gift of Mrs. Ann Thwaytes, of Charman-Dean.

Wells.—The pews in St. Cuthbert's Church are to be altered; and a new church is to be erected in the east part of the town.

Cheltenham.—A serious accident lately occurred at St. Mary's Church, here, by the giving way of a large portion of the ceiling over the reading-desk. Mr. H. Dangerfield, the Borough surveyor, was sent for by the churchwardens to examine the ceiling and roof, and reported the former to be in a very dangerous and insecure state, so much so that it would be absolutely necessary to close the church for some time. The laths were completely rotten, as well as the rafters.

Ludlow.—The ancient glass in the old church of Ludlow is being cleaned and repaired, by Mr. Evans, of Shrewsbury; and two windows are completed. Unfortunately, in the north and south windows but little glass remains perfect: the lights already completed on the north side are St. Barnabas, St. Leonard, St. Appolonia, St. George, St. Catherine, St. Ellena, an English Queen supported by angels, and the Virgin and Child. The work of restoration is proceeding in other parts: the reredos has been restored and enriched with colour by Mrs. Rattee, of Cambridge.

Chester.—Messrs. Gibbs have just obtained in a competition with various others, the contract for an east window to St. Bridget's Church, Chester, to be erected in memory of the late rector of that church.

Stafford.—The consecration of the portion of the cemetry connected with the Church of England, for the parishes of St. Mary and St. Chad, took place on Thursday before last. The cemetery is four acres in extent; but, according to the local *Advertiser*, it is too small. The chapels were originally designed together, but are separately erected. They are built of freestone from neighbouring quarries, the face of the external walls being axed and drafted, and set in small courses. The interior of the chapels is open to the roof. The rafters are framed diagonally. The whole partakes of an Early English character. The registrar's lodge is of brick, with stone dressings, having Gothic-headed windows to harmonize with the chapels. The whole of the works have been erected, at a cost of 1,770*l.* by Mr. C. Espley, from designs and under the superintendence of Mr. C. Trubshaw, of Stafford, architect. The grounds have been planted with ornamental shrubs, under the management of Mr. Sandy.

Batley.—The foundation-stone of a new Congregational Chapel, has been laid here. The chapel will be in the Gothic style, and will accommodate a large congregation, who intend to convert their present chapel into a school building. The designs for the new chapel have been furnished by Mr. M. Sheard, jun., of Batley, architect.

THE CLOCK AT THE HOUSES OF PARLIAMENT.

THE proceedings connected with the intended clock at Westminster are not regarded complacently by some of our correspondents: all sorts of unfairness are complained of, but we are not in a position to say that the case is made out. One remarks that "the faces are so arranged (although of immense size) as to be perfectly useless for the purpose of distinguishing the time (even to a person standing in Palace-yard)," and asks "if it be true that the clock is made of cast-iron?" He further complains that the matter is now wholly in the hands of *one* gentleman, Mr. Denison. Another writer says all the English bellfounders have been insulted in connection with this clock, and is surprised they should be so quiet under it. Are we to believe that we are travelling backwards on *all* roads?

CRYSTAL PALACE.

THE Directors of the Crystal Palace are about to extend their sphere of operations to the illustration of Art as allied to Manufacture, and with this view have determined upon the foundation of a Ceramic Court as an experiment, which, if attended with success, will be followed by a series that shall eventually represent the productive power of the principal manufactures of England.

With reference to the initiatory step, it would be superfluous to enlarge upon the interest which will attach to a collection of rare and valuable objects, illustrating the beauty and variety of a manufacture with which Art formed so early and intimate an alliance, and which presents, through all its details, a combination of Science and Art without a parallel in the whole range of industrial action. The national importance of our potteries, in a commercial point of view, is not yet thoroughly appreciated. They call into exercise important powers of chemical analysis and mechanical ingenuity, and they develope artistic faculties to an extent and with a fitness certainly unequalled in any other branch of manufacture. The nature and extent of their own commercial resources, for without such a knowledge they can never properly appreciate their national interests.

The proposed exhibition has been confided to the direction of Mr. Thos. Battam, and will contain a large collection of Plastic Art, from the earliest dates of its invention down to the present time.

We understand that the directors have elected Mr. James Fergusson to the office of general manager of the Crystal Palace. Mr. Fergusson is well known to our readers by his various works on the fine arts, and on architecture: what his particular views may be as to the Crystal Palace we do not know, but there is no doubt if he brings his mind to bear upon the subject, advantages will follow. That a *good* manager is needed at the Crystal Palace has too long been evident.

RAILWAYS IN CEYLON.—A company has been organized for the introduction of railways into Ceylon. Their capital is 1,000,000*l.* in 50,000 shares of 20*l.* each, the first deposit being 1*l.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the meeting of the Institute on the 28th ult.,—M. Penrose in the chair,—Mr. G. B. Williams was elected as Fellow.*

The discussion on the paper read at the last meeting,—"Remarks on the Forms, Methods of Casting and Ringing of large Bells," was resumed. The evening was chiefly occupied by an address from Mr. E. B. Denison, the substance of which we give below.

The chairman announced the decease of Mr. G. T. Andrews, Fellow, and of Mr. Mountford Nurse.

On Monday evening, the 11th instant, the discussion on the subject of bells was resumed.

The following gentlemen were elected:—Mr. G. Vulliamy, as Fellow; Messrs. H. R. Fricker, G. Low, and F. Warren, as Associates.

MR. E. B. DENISON ON BELLS AND THE MODE OF RINGING THEM.

FROM various experiments I have come to the conclusion that bells of the common and well-known shape, with a thick lip or soundbow, are the most effective known instruments for producing a loud and musical sound, such as you want when you erect a large public clock, or put up a peal of church bells. And I confess also, that after trying at Messrs. Warners', a number of experiments with bells of the usual general form, but with various deviations in the details, I am equally satisfied that there is nothing to be gained by deviating materially from the established proportions of the best old bells. And I think it is some confirmation of my views to tell you that Professor Wheatstone having been commissioned by the Board of Works, with Sir C. Barry, on his own suggestion, to collect information at the late Paris Exhibition, "respecting the most esteemed chimes in France and Belgium, and whether there are in those countries makers acquainted with the traditions of the art, or who have applied the discoveries of science to the improvement of bells, or to efficient substitutes for them," has come back with the conclusion that no such efficient substitutes have been discovered, nor is there any known improvement on the established mode and materials for casting them. Sir C. Barry and he, indeed, seem to have been rather impressed with the merits of the cast steel bells which you may have seen noticed in the newspapers. I have not heard them myself, but I have heard such decided condemnation of their harshness of sound from other persons of probably more experience in such matters, that I do not the least believe in their being received generally as an efficient (though they may be a cheap) substitute for the more expensive compound of copper and tin; and, on the whole, that seems to be Professor Wheatstone's opinion also.

But although I have thus satisfied myself that the common form and material of large church and clock bells, such as we want at Westminster, are substantially the right ones, there still remains a great deal to do to ascertain the more precise details of form and composition which will produce the best sound out of a given quantity of metal. And here I considered that we had to begin at the beginning, and it is hardly an exaggeration to say, that instead of presuming that anything is right because we now find it in use among the bell-founders, it is rather safer to presume that it is wrong. That there is something very far wrong somewhere in the modern style of casting bells, and especially large bells, is manifest from this—that everybody who has paid any attention to the subject, complains of the lamentable inferiority of modern bells to old ones, and even to bells made in the early part of this century. Let me quote again that same letter of Professor Wheatstone's to the Board of Works, with reference to this subject:—"The very unsatisfactory result of the chimes constructed for the Royal Exchange, which have been twice re-cast, without any ultimate advantage, shows that no known bell-founder in England can be relied

* At the previous meeting the following gentlemen were elected:—Messrs. W. J. Smith and G. Morgan, as Fellows; Messrs. H. Prim, G. Saunders, and J. Edmeston, jun. as Associates.

on." And then he makes the suggestion which I quoted just now. I know perfectly well that the makers of all these three unsuccessful peals of large bells (two of which were cast by Mr. Mears, and the third by Messrs. Taylor, of Loughborough), can produce volumes of testimonials to the excellence of their bells. But I have seen rather too much of testimonials to pay much regard to them, whether they relate to bells, clocks, or morals. To say nothing for the present about the two latter articles, I have heard people describe bells as "very fine," which I would not buy at a penny a pound, except for the purpose of selling again at ninepence. As for the opinion of musicians, as such, I value it rather less than that of other people, because I have always found that the first and almost the only thing they look at, is whether a peal of bells are in tune with each other, the least important part of the business, for two reasons,—first, because if they are out of tune (unless very atrociously), they can be cut into tune; and, secondly, because a set of iron saucepans could be made as perfectly in tune as the finest peal of bells. And with regard to single bells, where the question of tune does not arise, still, unless a man knows by experience what kind of sound a certain weight of bell-metal ought to produce, it is impossible that his judgment can be worth anything on the merits of any particular bell. Most Oxford men believe their Great Tom is a very fine bell, just because it makes a loudish noise, and they have no idea, and cannot have any, whether it is either the quantity or quality of noise which ought to come out of a bell of 7½ tons. Whereas, I know that a *good* bell of half that weight would give a much louder and a much pleasanter sound, and that, in fact, the bell is about as bad as possible. I mention that, because it is not a modern one, having been cast in 1680; and because the *occasional* occurrence of bad old bells, and also of good modern ones, proves that the general badness of the modern ones, compared with the general goodness of the old ones, is not to be accounted for by the hypothesis that they improve by age; though it is true, that they generally do improve a little for a few years. Without saying that any of the modern large bells, such as those of York, Lincoln, and Montreal, are quite as bad as the Oxford bell, they are all very far short of what they ought to be, and very inferior to the *old* Tom of Lincoln, which was cast in 1610, and was considered the finest large bell in England, as I can easily believe from the density of the metal, of which I have a piece, and I shall say more about it presently.

It has been stated in substance by the founders of the two first condemned Exchange peals, that the second of them at any rate must have been good ones, because they (or most of them) were cast from the same *sweeps* or patterns as the celebrated Bow bells, which were cast by the predecessors of the same firm in the last century; and, indeed, they say the same of many others of the modern peals which people are stupid enough to pronounce very bad. I am rather inclined to think that this identity of shape, together with the inferiority of sound, which is manifest to everybody except the founders, proves something very different, viz. that they have forgotten the traditions of their own art and of their own house; and as the quality of bells cannot possibly depend on more than these three things—shape, metal, and casting, and they themselves tell us that the shape is the same, they leave us no other solution, except that they use bad metal, or have lost the art of casting it properly, or both. That some of the modern bells are unsoundly cast, I can say positively, because I have seen the metal full of holes, which are sometimes visible on the surface, but sometimes, and I suspect more frequently, invisible until the bell is broken. The larger a bell is, the more likely this is to happen, as it is well known that thick castings are harder to make sound than thin ones; and that is an obvious explanation of the fact, that the large bells of modern times are even worse than the small ones. Now, it luckily happens, that we have a ready means of discovering whether a bell is both soundly cast and of good metal, by simply taking its specific gravity for the soundness, and analyzing a piece of it for the purity. You may file off enough from any bell to enable a chemist to analyse it, and see whether it contains any baser (*i. e.* cheaper) metals than copper and tin. And we know what the specific gravity ought to be: the old Lincoln bell was 8·78, and the old Doncaster bells (of 1722, not 1835, for some of the latter I know were unsound) were 8·76: the French authorities on the subject, I find, put it as high as 8·82, and from actual experiment. It is remarkable that there is scarcely any difference between the specific gravity of the alloy, whether it contains the largest or the smallest proportions of tin to copper that are ever used; because, though the tin is much lighter, it makes a denser compound with the copper until it reaches the proportion of speculum metal, about 1 to 2; whereas, bell-metal never has more tin than 1 to 3, and the modern bell-metal not so much as 1 to 4, because it is only put in in those proportions, and some of the tin always wastes in melting. The rule for getting the specific gravity is so simple that I may as well give it. Suppose the weight of the bell is A, then weigh it in water (taking care that it is both filled and submerged), and call that weight W; then the specific gravity $= \frac{A}{A-W}$; which ought to be 8·75 at least. With regard to the best proportions of tin and copper I am not able yet to state any certain conclusions. The fact, however, is, that the old Lincoln bell contained rather less than ·75 of copper, and the rest was tin ·20, and antimony, and a very small quantity (no doubt accidental) of nickel, with what the chemists call mere traces of some other metals. There was, some years ago, a fashion of putting antimony into speculum metal, but it seems now to be thought better to fill its place with tin. No antimony is found in the old Doncaster bell-metal, nor, I understand, in that of the old York bells, in which the proportion is 1 of tin to 3 of copper, as in the Lincoln bell it is about 1 of tin and antimony together to 3 of copper. I find also in a French book on alloys, three authorities for 1 of tin to 3⅓ of copper, others for 1 to 3, but only one for 1 to 4. I will just caution you against confounding 1 *to* 4 with 1 *in* 4. Remember, that if the tin comes out on analysis one-fourth of the whole, or ·25, it means that the tin is not one-fourth, but one-third of the copper. I mention this, because I have constantly found people confound the two things in other matters besides bell-founding. The bell-founders do not like this *high* metal, as it is called, because it is harder to cut if the bells require tuning; but they have no business to want tuning, and never do when they are cast of the proper thickness for their size. If the high metal is the best, that is a singularly bad reason for not using it. So far as I have yet been able to judge from experiments, I am of opinion that it is the best, for the more the tin is reduced below the point where it would make the metal too brittle, the less time the bell appears to hold the sound when it is struck. Lord Rosse adopted a multiple of what are called the atomic or equivalent proportions of tin and copper in his great speculum, which are 59 and 32 very nearly; and from some facts which Mr. Dent has told me about different compositions for chronometer springs, and other experiments, there seems reason to believe that there is some advantage in keeping to the chemical equivalents. At any rate it can do not harm, and you will find that 4 of tin to 13 of copper does give very nearly the ratio of 59 to 6 × 32, and it certainly produces a very hard, and elastic, and strong bell-metal, very like the Lincoln bell in appearance.

I have not time to enter into the details of casting, nor is there any occasion for it. I have told you how you may ascertain whether any given bell is made of sound bell-metal; and if the bell-founders are made to understand generally, as Messrs. Warner do with regard to the Westminster bells, that their bells will be rejected if they are not made of sound bell-metal of proper density, they will take very good care that they are. I will, however, just mention that Lord Rosse's method of getting a sound speculum, by casting it on a cold bottom, would not do for bell-founding; for you will see at once that a thing of the shape of a bell cannot cool in layers like a flat speculum of uniform thickness. What we want is a method of keeping the metal in the upper part or waist of the bell hot and fluid as long as possible, so that it may keep falling down into the sound bow or thick part as the metal cools there. Moreover, copper and its alloys of tin have this remarkable property, that the slower they are cooled the harder and denser they are. A bell-metal bullet, cast in a cold mould and thrown into water as soon as it is solid, is quite soft and stringy inside, though very smooth outside, compared with one cast in a hot mould and cooled as slowly as possible; indeed, they are so different that you would suppose the latter had twice as much tin in it as the former, if you did not know their history. Mr. Varley tells me, that some copper cylinders for printing were cast of even greater density than hammered copper, by forcing the metal down into the runner or "git" with a piston heavily weighted. Messrs. Warner's plan of casting bells from iron cores and copes, coated only with the loam, seems to offer great facilities for this forcible mode of densification.

But there is another cause of the inferiority of modern peals of bells, which is still more easy to judge of and to get rid of, if you choose. It was noticed in a short paper on bells in the Ecclesiologist, vol. XIV. that less metal is now used to produce a given note than in the old bells. Of course, if the result was equally good, that would be a great proof of the skill of the modern bell-founders. But unfortunately, the result is very bad. I do not think, however, that they are so much to blame for it as the public, who in this, as in everything else connected with building, are always demanding grand effects out of insufficient means. At the same time, as the bell-founders seem rather disposed to humour than to correct the public ignorance on this point, I will try at any rate to make you understand this fallacy. First of all then remember, that any musical note can be got out of any weight of metal. You may get a note an octave or two deeper than the E flat, which I expect our great Westminster bell to be, out of fourteen ounces just as well as fourteen tons of bell-metal, if you only make it thin enough. And on the other hand, we could have those fourteen tons of metal cast into a bell with a note one or two octaves higher, if we only made it small and thick enough. In the former case you know, we should have a bell that would be scarcely heard at the distance of ten yards instead of ten miles; and in the latter, the mass would be too thick to be put into musical vibration at all, and it would give very little more than the mere sharp noise of a blow. Somewhere between these limits necessarily lies the thickness and shape of a bell which will give the best sound for its weight: if you make the bell larger and thinner than that best form (whatever it is), you lose in power and quality of tone, though you increase the depth of note; and if you make it smaller and thicker, you raise the note, and when you get beyond a narrow limit, you lose in power too, because the bell becomes too thick to be made to vibrate throughout. Now, I am quite satisfied, and I believe it is generally acknowledged, that the most effective proportions for a bell are where the thickness of the waist is about $\frac{1}{11}$th, and that of the sound-bow about $\frac{1}{12}$th of the diameter. And these proportions will, of course, give one definite and ascertained note, and no other, for any bell of given weight and shape. The tenor at Bow, for instance, is C, and weighs fifty-three cwt. But Messrs. Taylor have made the tenor of their new peal at the Exchange, of the same note, with only thirty-three cwt.; and in some other peals which I have seen, they have deviated still further from the old proportions, for they carry this system even further than the other bell-founders. Again, it is a law of mathematical certainty, that if you make eight bells of any metal and any shape, provided only they are all of the same metal and proportions (*i. e.* the thickness varied in proportion to the diameter), and of dimensions in this ratio—30, 32, 36, 40, 45, 48, 60, they will give the notes of the common diatonic scale; and, in fact, be a peal of bells in perfect tune with each other. Moreover, their weights will vary as the cubes of the diameters, or the tenor be eight

times as heavy as the treble. But in practice it is found expedient to make the two or three smallest bells, especially the treble, rather thicker and heavier in proportion, and within moderate limits there is no objection to it. For instance, in the grand old peal of Exeter Cathedral, the tenor is sixty-seven cwt.; and the third of the ten is rather more than one-seventh instead of one-eighth of that weight. But in modern peals, you will be lucky if you get a tenor of eight bells more than four times as heavy as the treble, or the tenor of six more than double of the treble, though it ought to be nearly four times as much, even allowing for a little increase of thickness of the treble. Now, when you have not only inferior casting, but this system of spoiling all the large bells of a peal by thinning them besides, you need not be surprised at the universal complaints of the badness of modern bells. The remedy for this is simple enough: stipulate that no bell in the peal is to be thinner in the sound-bow than $\frac{1}{12}$th of the diameter, and this defect will disappear at once; only in that case people must give up making the absurd demand upon the bell-founders to give them a peal of bells in E for the money which will only buy copper and tin enough for a peal in G. When the specification was issued for the Westminster bells, one of the bell-founders wrote to ask what note Mr. Denison intended the great bell to be. I answered that Mr. Denison intended the bell to be of such note as it might turn out to be when made of the proper size and thickness to produce a good bell of 14 tons. I expect that note will be E flat; but I cannot say positively that it will be lower than E, because I have not yet quite determined the exact proportions which seem to be the best, by casting experimental bells of a quarter of the size, or $\frac{1}{64}$th of the weight, and consequently just two octaves higher. The third quarter bell will be the octave above the great bell, and therefore half the size and $\frac{1}{8}$th of the weight. You will find the order and construction of the chimes, and of the clock itself, in the Treatise on Clocks, which I wrote for the last edition of the "Encyclopædia Britannica," and which was separately published by Black, of Edinburgh, last year.

This is a convenient place for giving a list of the largest bells in the world, according to the best information I can get from various sources:—

	Weight.		Diameter		Thickness.	Note.
	Tons	Cwt.	Ft.	In.	In.	
The great bell of Moscow, broken in 1737	193	0	21	0	23	...
Bell at the Kremlin, fell in 1855	63	0	...		...	...
Pekin	53	0	...		...	...
Novogorod	31	0	...		...	...
Vienna, 1711	17	14	9	10	...	...
Sens	15	0	8	7	...	...
Westminster, 1856	14	0	9	2	9	E flat
Erfurt, 1497	13	15	8	7½	...	F
Notre Dame, Paris, Louis XIV.	12	16	8	7	7⅛	F [bly proba-
Montreal, 1847	12	15	8	7	8½	F
Cologne	11	3	...		...	...
York, 1845	10	15	8	4	8	F sharp
Bruges	10	5	...		...	G
St. Peter's, Rome...	8	0	...		...	...
Oxford, 1680	7	12	7	1	6½	...
Antwerp	7	3	..		...	...
Exeter, 1675, very thick in the waist...	5	11	6	4	5	A ?
Lincoln, 1834	5	8	6	10½	6	A
St. Paul's, 1709	5	4	6	9½	...	...
Ghent	4	18	...		...	...
Boulogne, modern	4	18	...		...	...
Old Lincoln, 1610...	4	8	6	3½	...	B
Fourth quarter-bell, Westminster, 1856	4	0	6	1½	6	B flat

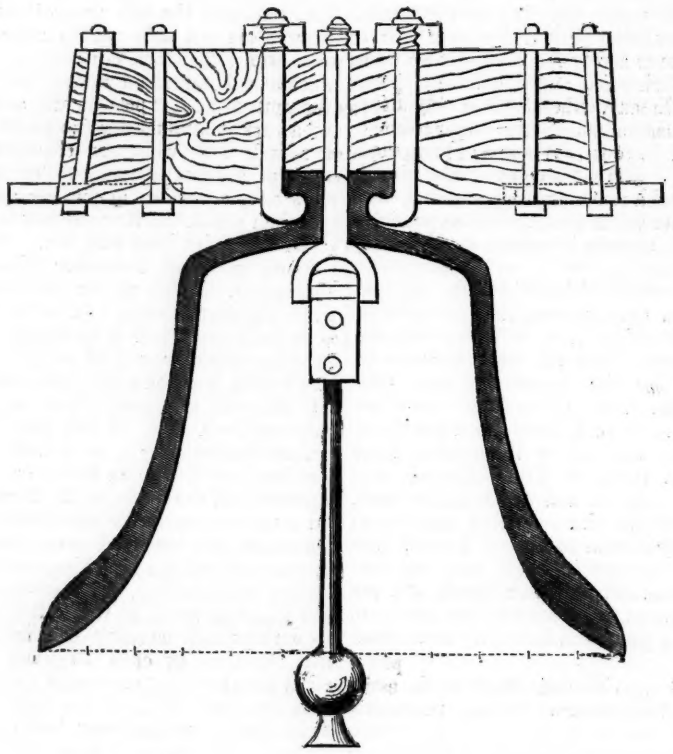
You observe that the diameter of the Erfurt bell, which is said to be the finest in the world, is less than Mr. Taylor's figures. As both his authority and mine agree about the weight, and this size is given me by a very accurate person, who measured it himself, and it is more consistent with the weight (the bell being a very thick one), I have little doubt that this is correct. Others give also greater sizes and weights for the Notre Dame bell, but these are the figures lately obtained by Mr. Donaldson from M. Viollet le Duc, the architect superintending the works at Notre Dame now, and he has sent a drawing of the actual figure, or sweep, of the bell on a large scale; so that this also seems to me the most likely to be correct.

I must add that the clapper is stated to be of the enormous weight of 23 cwt. or $\frac{1}{11}$th of the weight of the bell, which is about four times as much as I have ever seen suggested for the clapper of a ringing bell, though I lately had one put to a tolling bell of twice the usual weight, with very good effect. But M. Viollet le Duc has fortunately sent the dimensions of the clapper also; and it is clear from them, that the weight which has been given to him is fabulous, and at least three times too much. Even 7 cwt. would make it twice the weight of the clappers of the York and Montreal bells. I suspect ours are generally too small, and I am certain that when the bells can only be tolled, by reason of the weakness of the tower, much larger clappers might be well and safely used, provided the bells are really tolled, and not the clappers pulled against them with a force which depends entirely on the discretion of the man who does it. When the bell is too heavy to be tolled in the common way, the clapper ought to have a separate pulley, not at the side, but in front of the middle of the bell, and so placed that the ringer cannot hold the clapper against the bell. I believe more bells have been cracked by the slovenly practice of tolling by the rope tied to the clapper, than by all other things together, besides its twisting the clapper itself on one side, and deranging it for ringing. This is only one of the many points in which the saving of shillings often entails the waste of pounds, and sometimes hundreds of pounds, as at Doncaster in 1835, where the whole peal was recast at a cost of 300*l.* because the two largest bells had been cracked through mismanagement.

It did not appear to me that Mr. Smith made out a very good case against the swinging of bells. Indeed, as Mr. Barry said the other night, his own experiments were enough to satisfy us at that end of the room (if we had doubted it before), that swinging a bell, or a gong either, does increase the sound considerably. The notion of ringing bells in full swing being modern, and contrary to the intention of those who built our church towers, seems to me to have no shadow of evidence to support it.

* * * * *

I must not overlook the disease of which bells generally die, that is, cracking after the clapper has worn them thin in one place; and I offer you a plan for turning a bell in the stock. You will understand it in a moment from this drawing. It is nothing but a thick round neck



Section of a Bell, hung on Mr. Denison's Plan, so as to be turned in the Stock.

to the bell instead of a crown, with a flange round the top, which is embraced by six bolts coming through the stock. The clapper-bolt runs square through the stock, but round through the top of the bell, and has nothing to do with carrying the weight of the bell. When the bell is worn in one place, you have only to loosen the bolts a little, and then a few of the ringers, standing round the bell, will easily twist it round a little way for the clapper to act in a fresh place. If this is done once in ten or twenty years, according to the work of the bell, it may just as well last 1,000 years as 100, and this mode of hanging evidently need cost not a penny more than the common plan.

SURPLUS FROM PATENT OFFICE FEES.

The subject of patent law reform has just been revived by Sir Joseph Paxton, M.P., in a letter to the present Council of the Society of Arts. In this communication Sir Joseph invites attention to the large and constantly-increasing revenues derived from the fees paid by inventors for letters patent, and to the mode in which they are applied. He states that, in the year 1854, after deducting all expenses, there was a clear available surplus of 15,600*l.*, which was absorbed by the Treasury. He further estimates the present annual surplus at 60,000*l.* which will rise to 100,000*l.* in the year 1859, if the present system be adhered to. He conceives that the legislature never could have intended to impose such a tax upon patentees for the general purposes of the state, and he considers that the Society of Arts is bound to exert itself to rescue this annual surplus from the hands of the Treasury. He lays it down as a principle that the charge upon inventors for securing their patent rights should not exceed what is requisite for maintaining the Patent Office in a proper state of efficiency.

The Council of the Society of Arts, acquiescing in the opinion that there was room at all events for inquiry, appointed a very large and powerful committee of inventors and others to consider and report upon the subjects referred to in Sir Joseph Paxton's letter. The first meeting of this committee took place on Friday in last week. It appeared to be the unanimous opinion of the meeting that the first thing to be done was to obtain the recognition by the Government of the principle that the revenue arising from patent fees should be applied to furthering the objects of inventors; and that the fees so levied should not go into the general revenue of the country, but should be applied specially for the promotion of the progress of invention. Various resolutions were passed in furtherance of the object in view.

Fire at Beeston Church, Leeds.—This old church was severely damaged by fire on Monday before last. The disaster is attributed to over-heating the flues. The organ was totally consumed, and a large part of the roof destroyed.

OLD LONDON LANDMARKS.

AT the lower end of Clerkenwell Green was formerly the celebrated fountain, or Clerken-well, so called from the parish clerks of the city of London; who in ancient times used to meet there annually, to represent scriptural plays. The fountain was removed and some buildings planted on the site, but still the ancient well was represented by a pump, on part of which an inscription was properly put by the authorities to mark the historical celebrity of the spot. We were not sorry, considering the account we have heard of the recent condition of the drainage of some of the places surrounding it, and the close neighbourhood of graveyards, to see the handle of the pump chained up and fastened with a padlock; but note that the surrounding brickwork is falling sadly to decay, and are asked to say a word on the subject, lest the matter should be overlooked, now that the pump is unused; and that, perhaps, for want of a little present care, the memorial may be lost sight of.

SUSSEX COUNTY LUNATIC ASYLUM COMPETITION.

THE magistrates of Sussex, desirous of erecting a lunatic asylum, for 400 patients, at Wivelsfield, adjoining Hayward's Heath, invited five architects, known to have erected such asylums, to compete for the same, offering the superintendence of the building to the first, and two premiums of 100*l.* and 75*l.* to the second and third best. After considering the merits of the several designs for three months, they have selected that by Mr. H. E. Kendall, jun. the architect of the Essex County Lunatic Asylum, for adoption. One of the invited competitors did not send in, and it was agreed that the amount of the premiums should be divided equally between the three unsuccessful candidates. The chosen design is a three-storied building, of Romanesque elevation, very simple in form.

Notices of Books.

Mathematics for Working Men. Part I. Arithmetic and Algebra. By T. TATE. London: Longman and Co. 1856.

THIS is a practical work by a competent author. It contains the principles of arithmetical calculations; the estimation of works by the builders' price-book, with the general principles of estimation; and a new list of the constants of labour, with their application in calculating the value of work. It is better adapted to the requirements of workmen in the building trades than to any other, being full of examples, illustrating the measure of surfaces and solids, the value of carpenters, joiners, bricklayers, plasterers, slaters, glaziers' and other work, estimates for building cottages, stables, staircases, &c. &c.

London in the Olden Time,—Memoir and Pictorial Map. By WILLIAM NEWTON, Author of a Display of Heraldry. Published for the Author, 66, Chancery-lane, by Bell and Daldy, 186, Fleet-street.

THE large pictorial map to which the Memoir is appended in this new publication by Mr. Newton, purports to represent the metropolis as it stood in the reign of Henry VIII. before the suppression of the religious houses. The basis of the Map is Roque's Survey, in the beginning of the last century, assisted by various plans, maps, and representations of more ancient date. Stow's Survey forms the basis of the Memoir, in like manner aided by other authorities. Without committing ourselves to all the details of a laborious work of this kind, regarding many of which, indeed, there must ever exist a degree of uncertainty at the best, still it is a very elaborate and carefully compiled production, both pictorially and by description, and forms a highly interesting volume.

VARIORUM.

A "Catalogue of the Museum of Ornamental Art, at Marlborough House, Pall-mall." Part I. by J. C. Robinson, Curator, has been published by Chapman and Hall. It consists of 128 pages, large octavo, of letter press, besides a large number of pages full of illustrative sketches of works of art in the museum,—all at the nominal price of sixpence. The third edition is already in course of issue. This is something more than an ordinary catalogue, even as regards the printed matter.——"Orr's Circle of the Sciences" (Houlston and Stoneman), is assuming the shape of handsome volumes, two of which are now before us,—one on Organic Nature, being the second of the System of Natural Philosophy, and comprising Zoology, or the Natural History of Animals, by W. S. Dallas, F.L.S. and profusely illustrated with engravings. The other is on Inorganic Nature, and comprises treatises on Geology, Mineralogy, and Crystallography. The first treatise in this volume is one by Professor Ansted, on Geology, containing special divisions on Architectural Geology, Engineering Geology, the Geology of Mineral Fuel, and on the application of Geology to the Fine Arts, comprising an interesting section on the peculiarities of landscape scenery. The Mineralogical Treatise is by Professor Tennant, and the Crystallographic, by the Rev. Walter Mitchell. The works of writers of this stamp, cannot but sell well, and be profitable to the publishers.——Mr. Tate has had published by Longman, a little tract on "The New Coinage considered in relation to our School Arithmetics," for the use of teachers and tradesmen, and containing new and simple rules for converting the present coinage into the anticipated new coinage, and conversely, with numerous examples of the new coinage on the various rules of arithmetic. Mr. Tate is of opinion that the pound sterling will be retained as the unit of the expected decimal currency, and that the old copper coinage will be withdrawn, and a new substituted. This is much to be regretted: the penny, with its halves and fourthings, is the true unit, and the broad base of the monetary pyramid, and ought to be retained at all hazards. Nor need the pound or sovereign be withdrawn, although disused in formal accounting, any more than the five-pound note. The penny as the basis would only necessitate the introduction of a silver tenpenny-piece, and a golden hundred-penny-piece, for formal decimal accounting, leaving the old gold coinage to rank with the five-pound notes, and the hundred-pound notes as all equally beyond the categories of the ordinary system of decimal accounting. With the French, mere francs constitute the highest item of accounting, to the exclusion of all golden coinage; but with a hundred-penny-piece, we would have the element of gold represented in accounting, as well as that of silver in the tenpenny, and that of copper in the penny, and its halves and quarters; and this without the necessity of a monetary revolution, or the risk of a physical revolution, as by tampering with the copper coinage of the masses.

Miscellanea.

SALE OF TIMBER.—At a recent sale of navy oak and other timber, grown on the estate of Lord Portman, in the manors or parishes of Orchard Portman, Staple Fitzpaine, Bickenoll, Thurlbeer, West Hatch, &c. which took place at the Greyhound Inn, at Staple Fitzpaine, there were 1,547 trees, divided into 136 lots. The lots sold realized nearly 3,000*l.*

ARCHITECT'S "CLERK."—Will you or some of your enlightened subscribers, be kind enough to inform me when the above cognomen was first applied, and why? I have looked in vain through *Johnson*, *Walker*, and other English lexicographers, for its derivation or application to this subject: they invariably tell me, that a "clerk" is a bookkeeper or accountant, &c. &c. Now, I happen to be one who has nearly all his life unremittingly racked his brains, in order to acquire a position in Architecture and Engineering, and who so far has attained a share of eminence in both—yet because (as a young man), I am *only* managing assistant to an Architect and Engineer of high standing, I have duly conferred upon me the title of "*Clerk.*" (?) It is highly aggravating to me after all this study and application, and no doubt to many others similarly situated, to have simply (by virtue of the title) the credit of a mere practitioner in "the rule of three." Of course I respect every man's position in life honourably obtained, be it what it may, but "call a spoon, a spoon," and then I know what you mean. If I should be one for my trouble, you may designate me as such; but I have the vanity notwithstanding of claiming to be at least

AN ARCHITECT'S "ASSISTANT."

ELECTION OF SURVEYORS FOR ST. PANCRAS.—On the 13th inst. the St. Pancras Board of Local Management elected Mr. W. Booth Scott as their chief surveyor, Mr. Charles Worrell as clerk to the chief surveyor, and Mr. Isaac Douglas, Mr. William Whitbread, Mr. Robert Cunningham, and Mr. William Johnson, as assistant surveyors.

PROPOSED TESTIMONIAL TO THE FOUNDER OF BUILDERS' BENEVOLENT INSTITUTION.—At the suggestion of Mr. Alderman Cubitt, M.P. and other friends, it is proposed that a testimonial should be presented to Mr. Thomas Cozens, as the Founder of the Builders' Benevolent Institution, and a committee has been formed to carry out the proposition. It is to be hoped they will succeed. Mr. Cozens well deserves some memorial.

SMOKELESS FIRES.—I have always been considered, even by my two elder sisters, an excellent hand at lighting a fire in the good old-fashioned way, which I learnt once upon a time;—Paper first, then half a halfpenny bundle of wood, or, latterly, a patent fire-wheel; then the cinders and small coal, with a nice nubbly bit or two on the top for a finish. But it seems that I am wrong, and everybody else is wrong also, except your correspondent of last Saturday, who tells us how a fire *should* be laid. His plan seemed a very odd one to me; but as I am quite ready to believe that a nation *may* do things improperly for several centuries, and all the while think its blunders are beauties, I determined the experiment should have what advertisers claim—*one* trial. I *have* made the trial, laying the fire according to his directions, and the result has been "a blaze of triumph." It burnt up quickly and brightly, smoked less, and I think consumed less fuel. The economical part of the question is of great consequence to us; for ever since my beneficent godmother, Vestris, retired from public life, and declined the fairy business, the prince and I have been very shabbily treated, and live upon our little income in obscure lodgings, near Red Lion-square, on account of the College, at No. 33, which he attends; and I also go to the women's classes, after I have taken our boy, Cinderello (whose ambition it is to become president of the Ramoneur Association), to Herr Ronge's *Kinder Garten*. I must ask Mr. Maurice to let me organize a fire-lighting class; for I see Mr. Helps, in this month's *Frazer*, looks upon the art as a neglected female accomplishment. By the way, there are a few lines in his pleasant article which concern, and will greatly please, your professional readers.—CINDERELLA.

METROPOLITAN INTRAMURAL BURIAL.—Sir R. Broun has published another pamphlet, in the form of letters, to Sir George Grey, the Home Secretary, on the subject of "Burials within the Metropolis; or, the Dead Man's Question," in which he calls upon Sir George to prevent the interment of so many dead bodies within the limits of the metropolitan district. Sir Richard points attention to the fact, that Dr. Letheby, the new medical officer of health for the City of London, has congratulated the City Sewers Commission, that the last of the city burial-grounds, sixty-five in number, has now been closed; and he hopes that, within the present session, it will be the Home Secretary's task, as the supreme officer of metropolitan health, to do that which will enable him in like manner to congratulate the inhabitants of the whole metropolis, within another year, that the last of its nearly 250 charnel nooks has ceased to exist as a prolific source of pestilential disease.

THE CRADLE FOR THE EMPRESS.—A handsome cradle was wanted for the Empress of the French, something really elegant and good; and to whom think you, good reader, did the authorities apply to design and superintend it for them? Actually to a French architect, M. Baltard: and, what is more, the result is said to be very satisfactory; although we must confess that the description given of it does not commend it to our minds very strongly. It is to be in "the form of a boat." We should have liked it as well if it had been in the form of a—cradle.

THE VICTORIA DOCKS.—The Government are, we believe, in treaty for the purchase of the Victoria Docks, situated on the opposite side to Woolwich.

NEWCASTLE-UPON-TYNE SOCIETY OF ANTIQUARIES.—The annual meeting of this society was held in the Old Castle of Newcastle, on Monday before last, when the secretary read a report, in which the council congratulated the members on the prosperity and progress of the society. Some conversation then took place regarding a covered archway from the castle to the railway arches; and Mr. Longstaffe brought forward a motion, to the effect that the quarto series of the "Archæologia Œliana" being now completed, for the future the publications of the society shall be printed in demy octavo. Another motion was substituted by Mr. Fenwick, to the effect, that it be an instruction to the council to perfect the secretary's set of the Surtees' publications. The motion having been carried, office-bearers were elected for the ensuing year; president, Sir J. E. Swinburne, bart.

BELGRAVE-SQUARE.—A "Belgravian," anxious for the reputation of the late Mr. George Basevi, wishes to mention with reference to Mr. Britton's notice of the buildings erected by the late Mr. Cubitt, that with some trifling exceptions, "the houses in Belgrave-square were built by some gentlemen at that time termed the 'French Company,' to which Mr. Basevi was the architect, and under whose sole direction they were erected."

FIRE AT NEW HALL OF CAIUS COLLEGE, CAMBRIDGE.—On Saturday before last serious alarm was created in Cambridge, by the occurrence of a fire in the above hall, recently completed at a great expense. The ornamental work of the hall and the kitchen are damaged by floods of water poured in—the hall, also, by the partial destruction of the floor. The amount cannot yet be estimated. The cause of the fire is said to have been the insufficient size of the flue of the kitchen chimney, causing a large accumulation of soot: this had ignited, and heated the bricks to an extent sufficient to fire the dado and the floor of the hall, which is situate immediately over the kitchen, and is separated from it by a brick roof, arched in compartments, the floor of the hall being pugged under with lime and cement, in order to render the whole, what it was considered to be, fireproof.

DANGEROUS PROPERTY OF WATER DIVESTED OF AIR.—In a lecture recently delivered before the Royal Cornwall Polytechnic Society, by Mr. R. Hunt, F.R.S. attention was directed to some remarkable points in connection with the action of heat on water that contains no air, stating that, arising from this circumstance, as well as from the spheroidal condition of the steam generated, we have two very active and predisposing causes of boiler explosions. Water, in congelation, rejects all air, and if thus or otherwise deprived of air, it will not boil at 212 deg. Fahrenheit, if excluded from the atmosphere. In this state the temperature will increase even to between 270 deg. and 280 deg.: about these points the whole will explode like gunpowder. This condition of water is not unfrequently found formed in steam boilers, where, during ebullition, the steam carries off the air.

TRINITY CHURCH, TULSE-HILL.—On Tuesday before last the church recently erected on Tulse-hill was consecrated by the Bishop of Winchester. The church is in the geometrical Decorated style, after a design by Mr. Barry, of Liverpool. The spire rises to a height of 170 feet. The roof, 105 feet long, is in one span of 55 feet 6 inches, resting entirely upon the outer walls. The church has north and south transepts, with galleries above them, and is capable of seating 1,000 persons. The edifice, with the adjoining parsonage, has been built at a cost of rather less than 8,000*l.*

ADULTERATION OF WHITE LEAD.—Much has lately been said on the adulteration of food, drugs, &c. which may lead to the improvement of health, and the driving out of the field many of the impositions in practice. The exposure of those touching human life was of paramount importance; still there is a large field open for the inquiry in the various articles used in trade, and amongst them I think few demand a more searching inquiry than white lead. That there can be 1st, 2nd, 3rd, and 4th best, and genuine, is in itself so great an absurdity, that no man buying the worst can suppose he has much of the true article; but while every maker professes to sell so many qualities, how essentially requisite is it that the man who wishes to have the true and genuine one should know how, in an easy and simple way, to test the quality. With this view I would ask, through the medium of your work, as a boon to every man engaged in the consumption of the same, if some kind friend would furnish in your pages the proper test?—J. F.

HOLBORN-HILL AGAIN.—Your able advocacy of the improvements in the Metropolis deserves the greatest praise, and I cannot help suggesting your calling aloud for a remedy to the cruel and degrading struggling of horses on Holborn and Snow Hills, daily and hourly drawing heavy conveyances with twenty or more persons, which, in my opinion, calls for the interference of the Society for the Prevention of Cruelty to Animals. I hope you will call public attention to this great evil in the very heart of the metropolis, which may easily be remedied by a few brick arches commencing at St. Andrew's burial-ground and ending at Snow-hill. The property on the left-hand side is not now so valuable, and the width will allow enough of the old roadway to remain for those who prefer it. How the authorities can allow such a nuisance to exist is truly astonishing; and I do hope that you will call public attention to it, which will hasten a remedy and save the poor jaded horses which struggle up and down the hills with their heavily-loaded vehicles, all which may be easily accomplished at no very great outlay, especially as private interests must always give way to public improvement.

JOHN LAWRIE.

CHURCHYARD OF ST. MARGARET'S, WESTMINSTER.—My attention has been drawn to a passage in the *Builder*, relating to the churchyard of St. Margaret's, Westminster. You will be glad to hear that the first steps towards putting this churchyard in good order were taken some days ago, and I trust that a plan for its thorough repair and arrangement will be carried out with as little delay as possible.—H. J. MAUDE, Churchwarden of St. Margaret's.

TIMBER SALE.—On Thursday, Mr. Bentley sold by auction, at the Crown Hotel, Broad-street, upwards of 850 oak, elm, and ash trees, from estates at Bransford, Leigh, Powick, and Longdon Hillend. There has not been so large a sale of timber for some years, and it went off exceedingly well. Elm and ash fetched from 1s. to 1s. 4d. per foot, and oak from 2s. to 3s.—*Worcester Chronicle.*

PRICE OF GAS AT LEE, LEWISHAM, AND GREENWICH.—The inhabitants of Lee, Lewisham, and Blackheath, held a public meeting on 31st ult. at Lee Bridge, as to a reduction in the price of gas; when Mr. Bennett, of Blackheath (the Chairman), stated the reasons given by the Gas Company's servants for charging 5*s.* 6*d.* per 1,000 in Lewisham and 4*s.* 6*d.* in Greenwich, namely, the expense of mains, iron being very dear when the pipes were laid; the enlargement of the Company's plant costing more to supply the "out district;" and also the price of coals. He deprecated the enforcement of two prices, and called upon the inhabitants to avail themselves of the new Liability Act, and secure an improved local gas-work of their own. This proposition was very warmly received by the meeting. Mr. Newman concurred, and stated that from a return published in the *Builder* last year, it appeared that they were paying more in that district than in any other round London; and that there was no reason why gas could not be sold at 2*s.* 6*d.* per 1,000 He suggested, however, that a deputation be appointed to wait on the Phœnix Gas Directors, requesting to be placed on the same footing as the Greenwich consumers. A deputation was accordingly named. Several gentlemen stated their dissatisfaction with the quality also, and the bad supply of the Company's gas; others with the undue measurement by their metres.

SCHOOL OF ART FOR TAUNTON.—On Thursday before last, a public meeting—convened by circulars issued by the Bailiffs of the Borough on behalf of a Provisional Committee—was held at the Guildhall, when the necessary steps for the organization of a "School of Science and Art" in Taunton, in connection with the Department of Science and Art, at Marlborough House, were unanimously resolved on, and a committee appointed to carry out the measure.

HOUSES IN CAREY-STREET.—A correspondent directs our attention to "some dangerous old buildings in this street, ranging eastward from the corner of Bell-yard and Star-yard, which are truly unsafe." Our correspondent has only to give information to the Commissioners of Police, and they will direct a survey to be made under the new Building Act.

THE ARCHITECTURAL EXHIBITION.—On the 13th, H.R.H. Prince Albert visited the exhibition.

PUDDLERS' STRIKE AT DERWENT IRON WORKS.—During the last fortnight the puddlers employed at the Derwent Iron Works, Bishopwearmouth, have been on strike. It appears that the men are fifty-four in number. There is a dispute as to wages, but the workmen contend that the iron is not in a proper working state. The puddlers left work at a moment's notice, and upwards of 850 other workmen were hence thrown out of employment. The owners of the works refused to pay the puddlers their wages then due, as they had not given a fortnight's notice. The Sunderland magistrates have decided that one half the wages should be forfeited. The strike, by last accounts, still continues.

DESTRUCTION OF THE PAVILION THEATRE, WHITECHAPEL.—Early in the morning of the 13th, this theatre was entirely destroyed by fire. The cause is unknown, and some attribute it to the spontaneous combustion of oily tow or lamp-black in the painting loft.

SALE OF PLANT AT BIRKENHEAD DOCK WORKS.—Messrs. Brassey and M'Cormick having fulfilled their great contract at the Birkenhead Docks, by the completion of the embankment enclosing the south reserve, and the whole of the dock property having been purchased by the Corporation of Liverpool, the immense stock of plant and materials with which the work has been carried on has been offered at public auction, by Messrs. Thos. Winstanley and Sons. One day's sale alone produced between 6,000*l.* and 7,000*l.* and the whole property was expected to realize about 14,000*l.* or 15,000*l.* Lot 466, a 40-horse-power horizontal engine, brought 1,100*l.* or about 28*l.* per horse; 447, three boilers, 210*l.*; 449, four pair of mortar-mills, 850*l.*; 517, 30-horse high-pressure beam-engine, 945*l.*; 518, a set of 14-inch iron pumps, 310*l.*

THE WELCH IRON TRADE.—The ironworks generally throughout South Wales are in full employ, not only in the manufacture of rails and bars, but also of pig iron. Large orders for rails are said to have been taken by those works which roll rails, at from 8*l.* 10*s.* to 9*l.* 10*s.* per ton. In several localities extensions of premises are going on.

FIRE AT EAST MALLING CHURCH.—This Church was discovered to be on fire on Monday before last. The woodwork suffered to a considerable extent, the damage being estimated at 300*l.* The cause of the fire was the overheating of a flue, which, passing through the roof, ignited the woodwork.

PRESERVATION OF THE SOUTH CASTLE AT SOUTHAMPTON.—A public meeting has been held at the Guildhall, Southampton, for the preservation of the architectural remains, called the South Castle, and associated buildings, known as the Old Gaol and Debtors' Ward, and for setting them apart permanently for a museum, library, and school of design. The mayor presided.

INSTITUTION OF MECHANICAL ENGINEERS.—The ninth annual general meeting of this institution was held on 30th ult., at the house of the institution, Newhall-street, Birmingham, Mr. William Fairbairn, F.R.S., president, in the chair. The annual report of the council spoke of the satisfactory position and progress of the institution. The election of officers for the present year took place, together with the election of several new members, Mr. Joseph Whitworth being elected president. A paper was then read "On the Pumping Engines of the Wolverhampton Water Works, with some Remarks on Water Pumping," by Mr. Henry Marten, of Wolverhampton. The second was "On Wood Bearings for Screw Propeller Shafts," by Mr. John Penn, of London. The next was a "Description of an Improved Construction of Crossing," by Mr. Henry Woodhouse, of Stafford. The last paper was "On an Improved Safety-valve," by Mr. Ramsbottom, of Manchester. In the evening a number of the members and their friends dined together at Dee's Hotel, in celebration of the ninth anniversary of the institution.

THE BARRACKS COMPETITION.—The decision of the committee now waits the approval of Lord Panmure. The letters containing successful competitors' names have not yet been opened. It appears that the first decision of the committee has been revised.

TENDERS

For building a residence in the Italian style in East-India-road; Mr. William Ellison, architect:—

	New House.	Allowed for old House on Site.
Hunter	£1,890	£60
Hack and Son	1,870	75
Blackburn	1,860	105
Rivett	1,832	75
Watts	1,820	102
Jeffrey (accepted)	1,795	90

For the Midland Institute buildings, Birmingham; Mr. E. M. Barry, architect:—

	In Stone.	In Cement.
Piper (London)	£16,840	£15,380
Smith (Birmingham)	16,145	14,470
Nowell ,,	15,700	14,276
Cubitt (London)	15,730	14,106
Pashby (Birmingham)	15,550	14,050
Hardwick ,,	15,540	14,045
Lucas (London)	15,464	13,964
Cresswell (Birmingham)	15,300	13,680
Wilson ,,	15,150	13,660
Briggs ,,	14,900	13,450
Branson and Gwyther (accepted)	14,474	12,948

TO CORRESPONDENTS.

"*Ornamenting Candles.*"—A correspondent, who signs herself "Deborah D." wishes to know the best means of "illuminating candles," i.e. colouring, not lighting them; whether they must necessarily be of wax, or if Price's patent composites will afford a successful ground for operating upon. The difficulty is to lay the colour on smoothly.

"H. K."—"J. F."—"J. T."—"C. A. W."—"C. H. W."—"One of the Public"—"A Master in Training"—"An Artist"—Two Bell-founders"—"J. H."—"T. R."—"J. J. (it must be done by bringing previous knowledge to bear on accounts of the time occupied and materials used)—"W. B."—"J. R."—"B. B. B."—"J. B."—"Gas"—"Sir R. B."—"T. B."—"H. C."—"H. L."—"A Reader"—"W. F. H."—"H. B." (it is not a builder's business; and we cannot say what he ought to charge for doing it. It must depend upon the circumstances)—"J. S."—"G. C." (Stone)—"J. D." Dover (send address to publisher)—"W. L."—"J. A."—"W. G. S."—"G. F. F."—"Lloyd and Sympson" (will appear)—"G. B. N."—"An indignant Glass-painter"—"Superintending Architect of Metropolitan Buildings" (Mr. John Henry Taylor wishes us to state, that he withdrew from being a candidate for this office "when the salary was fixed at 800*l.* considering it not sufficient to induce any architect of experience to devote his whole time faithfully to the discharge of such very important duties."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and not to the Publisher.

NOTICE.

FROM and after the 1st January, 1856, the *entire postage* upon all newspapers sent to France, and Foreign countries *viâ* France, must be prepaid: the stamped copy of the paper is of no avail.